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ADDRESSES.

A FEW LIVING ISSUES AFFECTING THE HISTORY OF MEDICINE, AND WHAT CAME OF THEM.

The President's Address, delivered at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7, 8, 9 and 10, 1895.

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The patriot poet of Scotland, Robert Burns, recalling the aspirations of his ardent young manhood, immortalized one of them in these simple but eloquent lines:

"A wish (I mind its power),
A wish that to my latest hour
Shall strongly heave my breast;
That I for poor auld Scotland's sake
Some usefu' plan or book could make,
Or sing a song at least."

By simply substituting the larger term, Humanity, for the poetical and romantic one, Scotland, in this stanza, we have a sentiment appropriately expressive of the motive which brings us together to-day.

The annual meeting of the AMERICAN MEDICAL ASSOCIATION occurs at the brightest and sweetest season of the year and in most congenial surroundings. It never, as far as my recollection of its meetings extends, has failed to prove an occasion of delightful interchange of fraternal relations between its members, as well as a season of practical advantage to all sorts and conditions of men, influencing as it does, for the highest ends, innumerable interests and shedding rich blessings upon humanity, wherever sickness is to be healed, vice to be cured, life to be saved, or good to be accomplished. If the present occasion proves any exception to its predecessors, you will readily believe that my most earnest ambition is that this may consist in the fact that its endeavors shall be greater and its results more valuable than those of any previous meeting. So far as the surroundings and associations of our present place of meeting are concerned, we are indeed highly favored.

The members of an ASSOCIATION, interested in matters medical, philosophical, humanitarian, that could fail of being uplifted and inspired by the atmosphere and genius of this beautiful classical city of Baltimore, with its more than imperial halls of learning, its ideal and palatial hospitals, and beautiful charities, its world-famed scholars, philosophers and leaders of thought, must have reached a stage of indifference and lethargy painfully suggestive of that hopeless form of degeneracy known as "paretic dementia."

In the presence of this great and learned ASSOCIATION and in the midst of such impressive scenes of scientific and professional suggestiveness, it is with no little hesitancy and timidity that I invite you to accompany me in a brief and inevitably imperfect retrospect, having reference to what I have designated as "A few living issues affecting the history of medicine, and what came of them."

My purpose is to recall briefly, certain questions which in their day received the active and interested attention of the profession, and of scientific and thoughtful people. In doing this, I shall confine myself to the period of my own professional cognizance, namely, the forty years last past or thereabouts.

For some years immediately preceding and immediately following the beginning of my professional life, the attention of science and of medical thought was directed toward that renowned center of medical and general learning, my own alma mater, Edinburgh. A glance at the names which at that time constituted its medical faculty will explain this. They were Syme, Simpson, John Hughes Bennett, John Goodsir, Robert Christison, Lyon Playfair, Mr., now Sir William Turner, who is the only one still remaining of that brilliant galaxy of teachers and philosophers. Playfair still survives, but many years ago he abandoned academic pursuits and devoted his life and great abilities to statesmanship, being now a member of the House of Lords, a distinction rarely attained by a member of the medical profession.

Such a faculty could not fail to attract interested attention. While it is well known that at Edinburgh a vast amount of extremely valuable work was, in these days, accomplished in all departments of medical science, still there was, in that far-famed school, one man and one question toward which, from every quarter of the civilized world, eager anticipations were directed. This man was James Young Simpson, and the question was, "The use of chloroform as an anesthetic." Having caught the essential idea of relieving pain by the inhalation of ethereal vapors, from this country, Simpson, with the energy and courage of his great nature, devoted all his eloquence, ingenuity and literary acumen to the development and final establishment of the new doctrine. How he succeeded we now know full well.

Simpson and his followers advocated the tremendous innovation of administering chloroform, not only in surgery, but to suffering woman in her time of sorest need. The proposition aroused a tempest of opposition from all sides, not excepting the pulpit. All the unreasoning conservatism, not only of Great Britain but of the civilized world, was concentrated and arrayed against Simpson and his allies in this movement. He was maligned by his professional brethren, discredited by the general public and anathematized by certain parties in the church. All experience was against him, all theory was adverse to the

proposed innovation in practice. The Bible even, that messenger of peace and goodwill, was hurled at his devoted head and he was advised to read the sixteenth verse of the third chapter of Genesis and ponder it in his heart:

"Unto the woman he said, I will greatly multiply thy sorrow and thy conception; in sorrow thou shalt bring forth children and thy desire shall be to thy husband and he shall rule over thee."

To all his antagonists Simpson presented a brave and undaunted front. To all their arguments he opposed counter arguments which eventually settled the dispute advantageously to humanity and creditably to him. Asked by a high dignitary of the National Church of England on what authority he presumed to contravene the original curse pronounced against the woman, he aptly replies by calling attention to the closing verses of the second chapter of Genesis, which he claimed to be the true and authentic record of the first instance of the use of anesthetics, by which a precedent was established for all similar emergencies:

"And the Lord caused a deep sleep to fall upon Adam and he slept, and he took one of his ribs and closed up the flesh instead thereof."

The propriety and wisdom of using chloroform in labor is happily not now regarded as a *questio vexata*, although my own belief is that it is not yet used as frequently or as generally as it ought to be. I heartily agree with those who administer it in the trying stages of *every* case of labor. Simpson contended for its judicious use in cases of *puerperal, infantile* and other convulsions. So far as my own observation and experience go in this class of cases, it stands to-day the most valuable and reliable means of immediate relief. On calm and deliberate reflection is it possible, I ask you, to over-estimate the courage, the determination and the fine scientific faith of him who, in the face of such tremendous odds, fought to a triumphant issue, this great battle for science and humanity. If the annals of medical history furnish an equally brilliant example of well earned and priceless victory, I am at a loss to know where it is to be found.

Before leaving this subject it seems no more than fair to prefer a claim for a considerable degree of honor for one of Simpson's patients who proved also to be a powerful ally. I allude to a certain illustrious lady who, reposing sublime confidence in her medical adviser, and influenced we doubt not, by the consideration that the weight of her example must forcibly affect the great question at issue, did not falter in her brave determination (although every conventional influence opposed, and the great ecclesiastical organization of which she was and is the temporal head, held up a warning finger to restrain and deter her) of becoming a party to so startling and revolutionary a proposition. Gently but firmly pushing aside these and other influences, she gave the whole world a lesson, in the exercise of a reasonable and well grounded confidence in "*her doctor*," by submitting herself to the new and as yet almost untried obstetrical expedient, thereby instantaneously determining once for all the happy and victorious solution of this great and burning scientific issue, upon the everlasting and invincible grounds of truth and righteousness. What reason and argument and strong contention well-nigh failed to accomplish, the brave action of a confiding and gentle woman made easy and certain. For this act of royalty may we not in all sincerity exclaim, "God save the Queen!"

In the year 1859, while I was a second-year student in the Edinburgh Medical School, the controversy connected with the introduction of anesthetics had barely been concluded when the scenes shifted, and immediately the movement of another great act in the drama of scientific progress began. For the scenes and acts of this mighty drama are continuous and unceasing. In it there is neither interruption nor interlude; on it the curtain is never rung down. In this year, Darwin's work, entitled "The Origin of Species," appeared in London, and as we look back and contemplate the effect of this book we are forced to admit that it constituted a turning point in the history of science. It appears now as if by its means the spectators were permitted to behold a new and hitherto unimagined and unimaginable view of the long sought for secrets of nature, making many things intelligible which, previous to that time, had been wrapped and hidden in that impenetrable and sepulchral vestment, "mystery." Like the wand of the magician it shed new light and inspired fresh hope along every highway and byway of scentific endeavor. Slowly but surely, men have come to see that Darwinism and the allied theory of evolution constitute the greatest and most radical living issue affecting the scientific thought of the last forty years. It is but a modest and feeble statement of the nature and extent of its claims, to affirm that the fundamental and far-reaching conceptions of Darwinism have forcibly and permanently affected every department of medical thought. By their influence, every department and every fact of the marvelous and beautiful drama of scientific evolution has acquired a new and greater significance.

It would be impossible, within the limits of this review, to particularize the luminous influences which have proceeded to every department of science, all of which had their origin in Darwin's great generalization. Foremost among these was one of profound biologic significance affecting all our previous conceptions of heredity. Heredity must always remain a prime factor in the etiology of disease. A correct conception of that in which it consists would appear to be indispensable for the comprehension of pathologic processes. Manifestly, if Darwin's law were true and if the acquirement of variations by means of natural selection was the cause of modification in the organism, not only must heredity be the cause of permanence in organic types, but it must also be upon transmission of beneficial variations that racial development is dependent.

These conclusions gave rise to a renewed application of the laws of heredity to medical science. Embryology became a matter of deepest significance. Teratology took rank as a science. Reversions in type began to be intelligible, strange growths were no longer viewed with wonder as *luses naturæ*, as sportive attempts of nature to accomplish something strange, but were studied carefully with an eye to their comparative classification. The Cohnheim theory of tumors arose, attributing to residual fetal cells a malign potency even greater than the doctrine of pangenesis would justify. The influence of Darwin on medicine can scarcely be exaggerated. Where is a better pathology of hernia to be found than in the "Descent of Man?" Notice how fertilizing an influence it brings to the study of obscure diseases. Dr.

Hector McKenzie, in his recent studies of Graves' disease, finds the cardinal symptoms of this disease, "tachycardia," "exophthalmos," "enlarged thyroid" and "muscular tremor" to be those of extreme terror. Darwin's explanation of the symptoms of terror is very suggestive. Men, during numberless ages, have endeavored to escape from their enemies or danger by headlong flight and violent struggling. Such exertion will have caused the heart to beat rapidly, the nostrils to dilate, the breathing to be hurried and all other symptoms of extreme physical effort, the final result being prostration, pallor and relaxation of muscles. "And now, whenever the emotion of fear is strongly felt, though it may not tend to any exertion, the same results tend to reappear through force of inheritance and association." If we imagine this condition of terror to become prolonged by failure of the nervous system to regain its balance, we then have a more or less complete picture of Graves' disease. Thus Graves' disease may be the expression, by the unconscious memory of the individual, of some shock in an ancestor. Nature has indeed a long memory. When she remembers her past so well, are we not arrogant in calling expressions of it "unconscious?"

While alluding to the influence of Darwin, especially through the doctrine of heredity, it would be wrong not to call attention to another sweeping generalization which must profoundly influence medical thought. The theory of heredity propounded by Professor Weissman, of Freiburg, may be said to have arisen out of Darwin's work largely through being a negation of some of Darwin's conjectures. Weissman's theory seeks to explain what no doctrine of heredity has hitherto accounted for,—how a single microscopic cell can reproduce parental characteristics, and frequently characteristics of grand-parents or remote ancestors. Darwin's doctrine of pangenesis was never felt to be entirely satisfactory. Weissman's theory of the "continuity of the germ plasm,"—the inference of the practical immortality of the germ plasm, the explanation of variation by means of natural not acquired selection, and the admission that a man resembles his parents, not because he acquires by transmission their characteristics, but because *he* as well as *they* arise out of the same germ plasm, these are conclusions which, if ultimately substantiated are bound to influence and modify our conception of disease and its processes most profoundly.

Those of us who can recall the birth and growth of this new philosophy, those of us who have been privileged to note the ever increasing influence of its teachings and methods on all our modes of thought, not only in the fields of abstract science, but in physiology, pathology and practice of medicine, not to mention other fields of effort, are fully persuaded that whether or not this may be set down as a live issue which has been finally and definitely estimated and disposed of, no more vital and far-reaching one has ever affected our views of natural processes or our methods of reasoning, whether as philosophers, scientists or practitioners of the healing art than this one so modestly and withal fearlessly set forth in the unpretentious volume entitled, "The Origin of Species," published in London in 1859.

Contemporaneously or nearly so, with the important issues referred to, we find another which, involving interests of the utmost importance was, from its nature not so capable of prompt demonstration, thus furnishing cause of argument and disagreement for a number of years. I refer to the striking revolution in the theory and practice of medicine which resulted in the abandonment of blood letting and all concomitant so-called antiphlogistic expedients on which the profession has so confidently and comfortably anchored its faith from time immemorial. The change came gradually but certainly. It was useless to deny the fact of the therapeutic reformation, and it was a fundamental and beneficent one. The discussion and the disagreement was as to the why and wherefore of the change. One explanation ingeniously asserted was that the type of disease had changed and that as a result the treatment had to be modified and made milder and more merciful in order to conform to the new and more innocent character of the attack. Other explanations have been given, but it would be a waste of time to recall them. The fact remains that about the time that I and others equally inexperienced were inhaling our earliest draughts of scientific inspiration under the guidance of the great authorities already mentioned, these eminent men themselves were passing through a radical and complete change of belief and of practice. Whatever obscurity may pertain to the various steps and moving causes of this reformation we, from the vantage ground of our present position, are able to look back and with calm judicial fairness recognize the actual truth as to how it was brought about. It was no mere chance, no experimental haphazard change of fashion, no mere product of climatic or meteorologic influences; on the contrary, it was the rich and well earned reward of intelligent, earnest and persistent study and observation, carried on in the spirit created and bequeathed to the scientific world by John Hunter and others of his type. Among the notable names associated with this issue, not one, in my opinion, stands higher than that of John Hughes Bennett who, studying and intelligently interpreting the fundamental and essential phenomena of irritation and inflammation as seen by the microscope in the web of the frog's foot, the bat's wing, and other translucent tissues, had the genius and courage to turn his knowledge thus acquired to practical uses and discarding the ancient and accepted sheet anchors of antiphlogistic treatment, blood letting, calomel, antimony and so forth, determined to give the *vis medicatrix naturæ* a fair chance. Supplementing nature's efforts by mild and supporting methods he succeeded in reducing the mortality of pneumonia from 20 per cent. to less than 3 per cent. in the worst class of *complicated* cases, while in plain uncomplicated cases the mortality was reduced by Bennett from about 20 per cent. to *nil* or thereabouts. These statistics are presented on the authority of my friend Prof. John A. Ouchterlong, of Louisville, Ky., and can not be questioned. And what was even more important he persuaded the whole professional world to pause and reflect. By imitating his methods of observation and reasoning, the profession, in the true spirit of scientific modesty yielded more implicit honor to nature and to nature's powers and methods of healing. In the accomplishment of this impressive transformation scene in the drama of scientific medical progress, the leaders of thought on this side of the Atlantic, to their honor be it said, furnished prompt, intelligent and effective assistance. This is one of those living issues, one of those stirring and inspiring acts in the drama of scientific

progress, the happy accomplishment of which I and my cotemporaries have been privileged to observe and take some part in. In close and rapid succession we encounter other issues to be enumerated in this review.

In the humble office of a poor and unknown physician in Alabama, and almost simultaneously in a small and comparatively limited and insignificant ward of the royal infirmary of Edinburgh, initial arrangements were wisely made in all scientific modesty and earnestness for the ultimate presentation of a marvelously important and beautiful scene in the great drama of practical medical science. In other words, by J. Marion Sims on this side of the Atlantic, and Simpson on the other, with the support and assistance of their immediate allies and associates, the science and art now known as gynecology was conceived and rapidly matured. From very insignificant and unpromising beginnings this science has certainly, as we all know, increased and grown and, in short, passed through an almost miraculous process of evolution. Although some of its claims may be extravagant and some of its methods objectionable, and its condition as a whole capable of improvement and refinement, we are bound to claim for it a most exalted and honorable position among the living and successful issues which have contributed to render memorable that portion of the great history of medical progress with which we are now concerned. For the vast amount of blessing it has afforded to suffering woman let us give sincere and heartfelt thanks. For any failures or blemishes with which this modern child of noble origin may be tainted, let us cherish the hope that these will at no distant date disappear by a gradual process of elimination and evolution.

In this retrospective view of living issues in medical thought, it would be impossible to overlook the important and inspiring one comprehended under the name of "the cellular pathology." With this page in the history of our science, the great name of Virchow will always be inseparably associated, as its founder and greatest advocate. Based on this great teacher's amazing and fascinating discoveries and deductions, a kind and degree of sanguine expectation was induced in the minds of many people, eager and perhaps too willing to believe that here at last the keynote of all pathologic speculation had been struck, that the solution of all the mysteries of the origin and nature of tissue degenerations was within their grasp, that in the tersely expressed principle "*Omnis cellula e cellula*" was comprehended the master key by which all the hitherto tightly locked avenues of pathologic truth were to be made an open sesame. It may be possible to look back and perceive that this confident expectation, was to a great or less extent, misplaced and doomed to disappointment. It can not be denied that there are even yet, in spite of the cellular pathology and all that has come after it and through it, a good many very deep and dark mysteries still unsolved in the domain of pathology. And yet is there an individual here present, is there a member of our profession anywhere who is not willing to pay sincere and loyal homage to the cellular pathology for its own sake, as well as to its immortal founder and his school for all that it made possible in the advancement of pathology, as well as biology generally?

My old friend and classmate, Mr. Lawson Tait (to whom, in common with my professional brethren everywhere, I am always ready to acknowledge a vast debt of gratitude for the eminent services which he has rendered to our profession and to humanity) has ventured to speak in terms of sarcasm and contempt of the cellular pathology. He tells us that when he entered the profession everybody was "mad after a new cell," and he adds, "a cellular pathology grew up which was to explain everything." The implication is obvious that everybody *did not* succeed in finding a new cell and that the cellular pathology did *not* explain everything, all of which is no doubt only too true. It is incomprehensible (to me at least) that Mr. Tait can believe or that he can expect other intelligent students and thinkers to believe that the cellular pathology of Virchow and his school does not stand out to-day as one of the most inspiring and beautiful features in the history of medical effort and thought in this age.

To say the very least, it constituted in its day a stepping stone of the most vital and critical necessity, without which the onward and upward march of pathologic and biologic progress must inevitably have been grievously delayed and embarrassed. Mr. Tait or any one else who presumes to sneer at or belittle this product of Virchow's genius writes himself down in my opinion on a plane with the illiterate and unesthetic bucolic immortalized by Wordsworth in the well known lines:

> "A primrose by the river's brim
> A yellow primrose was to him
> And it was nothing more."

Pasteur, Tyndall, Lister; the mention of these three names, familiar wherever the rays of modern civilization have penetrated is, I am sure, all that is necessary for the purpose of introducing here the ever fresh and all important "living issue" known as the "germ theory of disease."

It would be little short of impertinence for me to inflict upon you any extended dissertation on this great issue, in regard to which such ample facilities have been furnished for enabling every individual to obtain the fullest knowledge from which to form an intelligent opinion as to the precise value of this theory to practical medicine and surgery. This, at all events, will be freely conceded, that from the time of Hippocrates down to the present moment, the history of medicine will be searched in vain for another instance of the application of scientific facts and observations to medical theory and practice secured by patient untiring effort that can for a moment be compared with this one. Starting with Pasteur's abstract, and so far as practical medicine and surgery are concerned, we might almost say, aimless experiments and observations, like a photographic negative, gradually but beautifully it has developed and grown, until the whole theory of the healing art has come to be thoroughly modified and colored by its influences.

It was undoubtedly the inspiration derived from the Darwinian doctrine of the struggle for existence, ultimately securing the survival of the fittest, that gave new significance to the studies which had begun with Pasteur, and whose relation to surgery had been so splendidly demonstrated by Lister in a series of brilliant and conclusive experiments in 1865. If life from its abstract standpoint were a conflict in which the fittest survived, how much more so was the concrete and organic life the scene of a perpetual warfare with those insidious foes, the microbes. It

is not possible here to trace the growth and development of the new science of bacteriology which we know has revolutionized the science of surgery, modified the art of surgery and subverted our deepest, most fundamental pathologic beliefs. So essential has this science become that to-day we regard no young practitioner as thoroughly equipped for surgical work who is not something of an expert bacteriologist. It is out of the study of bacteriology and microbic pathology that modern medicine is slowly but certainly evolving one of her supreme triumphs. Hitherto the immunity to attacks of smallpox conferred by vaccination has been an isolated and incomprehensible fact. Jenner's discovery has been a witness to the value of empiricism in medicine. In harmony with no theory, explained by no logical device, vaccination has by its own inherent virtue proved the value of *undiscovered theories*. To-day a meaning is given to the word "immunity" such as was never before known. A great hope animates the noblest of professions, that in all the so-called zymotic diseases, immunity may eventually be conferred and the most disastrous agencies of human destruction may be deprived of their malignity through the sublime genius of man.

It would be impossible to discuss at length the various theories of immunity, nor can I venture to attribute the degree of truth pertaining to each. To designate the particular rôle of the phagocyte in the competitive struggle graphically described by Metschnikoff—to decide whether the organism generates its own bactericides, or whether the so-called antitoxins and alexines are the product of certain suicidal tendencies on the part of the bacteria themselves—these are secrets which the laboratory is effectually disclosing. Some one has said, a man confronts his own worst enemy as he looks in his mirror, and it may be that the bacteria themselves are their own worst enemies. That while they are causing commotion within our bodies, they are really engaged in the work of self-destruction. However this may be, the recent experience of the profession in the antitoxin treatment of diphtheria, a treatment the introduction of which the Health Officer of New York already admits has lessened the death rate from that fell disease 40 per cent., indicates that after the lapse of many years vaccination for smallpox is not to stand as an isolated fact in medicine. Every fact has some relation to all other facts. "For a blade of grass to grow all nature must coöperate," says Diderot. If immunity can be given in one disease it certainly can in others. If there be one event that can accentuate this meeting in the memory of those who honor it with their presence it will, I firmly believe, be due to the fact that to-day we, as a profession, stand on the threshold of one of the most beneficent discoveries medicine has ever made. A discovery whose consequences will transcend those of any other in the increase of happiness it will ultimately bring to mankind.

In any attempt to review the living medical issues of the last forty years, it would doubtless be expected that reference should be made to the all-important one of medical education, a subject in which my own humble endeavors have been intimately involved. My first course of lectures in a medical college was given at Queen's University, Kingston, Ontario, in the session of 1864–65, and from that time to the present the question of medical education has been a theme of vital thought and earnest ambition. In this country, in Great Britain, on the continent of Europe, everywhere, there seems to have arisen about that time a wonderful awakening to a new and better dispensation in the methods and principles of medical teachings.

The Edinburgh school led by Syme, Bennett and Gairdner, profiting by lessons derived from the great French teachers of that day, and from Mott and his cotemporaries in this country, inaugurated a reform which soon spread in every direction. This reform consisted mainly in abandoning the ancient and time-honored method of aiming to impart efficient medical and surgical training by that dreary and painful device "the didactic lecture," supplemented by text-books whose orthodoxy and reliability were estimated chiefly by their antiquity and exhaustiveness. Gradually methods have become more practical, clinical, demonstrative. Place side by side a medical college announcement of 1865 and one of 1895 and the contrast will be astonishing and commendable for the profound and radical improvement sustained. The mighty impetus given to medical pursuits which resulted from the experiences incidental to our great Civil War culminated in the establishment of medical schools in unnecessary profusion in nearly every State. The immediate effect on the requirements for graduation of this feverish activity with its concomitant rivalry constitutes, we must admit, a rather unpleasant subject of reflection. Time and force of circumstances have gradually tended to adjust this error, and the standard of medical graduation in the majority of our schools to-day is something of which we may all be reasonably proud. I should,however, be untrue to my oft-reiterated convictions if I hesitated to mention here one cause of complaint still justly chargeable to a considerable number of our American medical colleges. It is summed up briefly but truthfully as follows: some of these institutions claim to supply to their alumni complete courses and means of instruction; the fact is that one-half of them are shamefully deficient in clinical resources and facilities, while the other half are no less devoid of the men and the means necessary to do anything approaching to justice in teaching fundamental branches, without which a reliable and intelligent knowledge of surgery and practice of medicine is an impossibility. It has long been a settled doctrine with many people that the highest duty, as well as the material interest of these unilateral medical colleges, demand that they mutually agree that the efficient half of each shall be made more and more efficient and that the feeble and farcical one be suppressed or transferred to that institution which may be best able to do justice to the subjects under dispute. Some such mutual combination is essential if in the continued maintenance of these two classes of medical schools they are to be purged of the sin and shame of false pretenses.

In the rapid evolution and growth noted in medical education, it has seemed to those most closely concerned that the time has arrived when a united and determined effort might be made to establish a well-defined plan which would secure uniform coöperation in remodeling the whole system of medical graduation, thus securing for the various designations of "doctor," "surgeon," "physician" and so forth an intelligible and definite signification. This, in my opinion is "a consummation devoutly to be wished."

I have thus far aimed to recall briefly a few living issues in medical thought which have had the most far-reaching influence upon the practice of medicine and surgery during my career as an humble student and worker in that great and honorable army, whose duty and glory consist in its efforts to save life and relieve pain. If my presentation of these "issues" seem to you incomplete and imperfect, I ask you to consider the vastness of the subject and the impossibility of doing it more than partial justice in the time at our disposal. On every hand, issues of the most tempting and impressive attractiveness press forward in one's thoughts and demand at least honorable mention, but the limit must of necessity be drawn with arbitrary decisiveness in accordance with the inevitable and relentless rapidity of movement of the shadow on the sun-dial. That the few topics which our limited time has permitted us to pass in review have been essentially fundamental in their relations to all the others will be freely admitted. That these are sufficiently important to give honor and distinction to the epoch in which they occurred no one will deny. And during this epoch is it not true that in every civilized country under Heaven, vast legions of men have been constantly maintained for very different aims and purposes than those which have engaged our attention? Think for a moment of the incalculable expenditure of energy of every kind which has been devoted to the maintenance and equipment of those vast standing armies whose business it is to

> "March to the drum beat's roll.
> The loud-mouthed clarion's bray,
> And bear upon their crimson scroll,
> Our glory is to slay!"

Turning from the contemplation of these "marshalled hosts" and the death and destruction for which they are maintained, is it not a pleasant relief to direct our attention to such a peaceful and beneficent retrospect as that furnished by the labors and achievements of our profession? Is it not more pleasing to recall the quiet sublime efforts of our own contingent in the great "unending column" of life, that army which

> "Moves in silence by the stream,
> With sad yet watchful eyes,
> Calm as the patient planets' gleam
> That walks the clouded skies.
>
> "Along its front no sabers shine,
> No blood-red pennons wave;
> Its banner bears the single line:
> 'Our duty is to save.'"

To sustain and improve this practical and genuine army of salvation, ought to be the living and moving ambition of every individual and every association. The United States Government maintains a standing army of at least 20,000 men thoroughly equipped and trained, for the purpose of destroying the lives of persons who are supposed to be inimical to its welfare. It leaves to us the responsible and laborious duty of maintaining and equipping, to the best of our ability, a vastly larger and more expensive army of medical soldiers whose functions are infinitely more numerous, intricate and vital than those of any military organization. The functions of this army are not only to contend with the enemies of human life and happiness and in so doing to suffer, ofttimes, hardships and privations, but unlike the great army of contention and bloodshed, it is also our duty and pleasure to love, cherish, uplift and save.

Ours is an army which so far has had to be self-sustaining and independent; an army which, in respect to all the attributes and qualities of the soldier and philanthropist has no reason to shrink from comparison with any association of men in the world's history. To many persons, myself among them, it has for some time appeared that the recorded and recognized results of our achievements give us the right to insist that the peaceful but brave, resolute and progressive army, known as the medical profession, should receive from the people and the government of this country a practical and official recognition which would afford a fair opportunity for the adequate application of the principles of medical science to the needs of the community.

A National Bureau of Health, superintended by a competent medical authority who shall be a member of the Cabinet, could not fail to secure for the nation, benefits beyond the language of dollars and cents to express. A united and dignified effort on the part of this ASSOCIATION and its allies ought to secure this enactment. The vast importance of such an act is obvious to the members of this ASSOCIATION, and our imperative duty, as it seems to me, is to impress the active and public-spirited statesmen, who guide and control the affairs of the nation, with the essential truth and value of our views. The very respectable problems of foreign policy which have, in recent times, engaged the attention and elicited the energies of our law-makers seem to sink into insignificance in comparison with the great and benign proposition here presented.

It is my deliberate opinion that the establishment of a Bureau of Health, as an integral part of the nation's executive, will prove an effective instrument in promoting the public welfare. It will be the means of unifying efforts in the suppression of dangerous diseases. It will afford opportunity for restraining the effete despotisms of the old world from adulterating our population with the vicious and degenerate. It will be a means whereby this enlightened and progressive republic may exemplify, to the world, the true mission of medical science. It will offer another agency for disseminating the truths of scientific discovery; another means of discriminating between that which is transitory and accidental in medical achievement and that which is permanent and immutable; and will furnish another promise that medicine in the future shall in no wise be unworthy of her past traditions.

The party, professional or political, which shall succeed in consummating this wise measure will assuredly earn for itself the gratitude and applause of an appreciative nation. The individual citizen who shall materially contribute to the success of this noble "*usefu' plan*" will be justified in congratulating himself on having realized the lofty aspiration of the patriot, as well as the sublime and pathetic "wish" of the poet: "*Homines deos accedunt hominibus dando salutem.*"

Buttersack's Vaccine Micro-organism.—Dräer (*Centralblatt fur Bakteriologie and Parasiterihunde*) found the forms observed by Buttersack in lymph and claimed by him as the germs of vaccinia, in the contents of pustules after first as well as later inoculations, also in human serum, obtained by aspiration in pleurisy, in normal saliva and in albumin of hen's eggs. The last results prove that these forms can not be the specific cause of the inoculation pustule and that Buttersack's hypothesis is untrustworthy.—*Centralblatt für innere Medicin.*

LECTURES.

LECTURES ON INTRACRANIAL SURGERY.

VIII—SURGICAL TREATMENT OF EPILEPSY.

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In every case of epilepsy where an initial spasm of a segment or a part of the body, or a localizing aura can be detected, trephining is imperatively indicated; for epilepsy is a disease incurable by other than surgical measures, as a rule, while many cases can be benefited by operation when the site of focal disease can be determined and reached. This proposition has met, and still meets, with opposition, the reasons urged against it being three in number, viz., 1, in some cases subjected to operation, the convulsions have returned within a few months after removal of the apparent cause; 2, in a number of cases reported the paroxysms continued after operation, undiminished in number and intensity; 3, sometimes epilepsy is cured by a simple exploratory operation, no lesion being discovered—hence the conclusion that whatever good results from surgical treatment arises from the operation *per se* and not from relief of brain irritation. A general distrust of operative procedure, too, has sprung up, based upon the unfortunate fact that there has been undue haste in operating upon patients that mature deliberation has shown to be affected with incurable forms of the disease; and also because enthusiastic surgeons, not too familiar with the history of epilepsy, have published premature reports showing "cures," whereas the convulsive seizures returned almost before the articles were printed. Temporary cessation of spasms does not mean a cure of epilepsy, since it is a well-established rule—too little observed—to pronounce no case *well* until at least three years have elapsed after the appearance of the last attack.

But there have been too many well-authenticated and truly brilliant *cures* following surgical treatment of severe epilepsy due to depressed bone, tumor and abscess, to allow the unprejudiced physician to question the propriety of operating in any case of focal epilepsy. Nor is it necessary to have evidence of disorganization of the cortex; and I may add that under certain circumstances it is not even necessary to have marked localizing symptoms. For Péan reports the history of a patient who had suffered for years from inherited epilepsy, not traumatic; internal medication of every description failed; there was no localizing symptom except *pain*, which is not generally regarded as a sign of any significance in deciding the location of an intracranial disease; but in this case it was trusted and exploratory craniotomy performed at the seat of the localized headache and an angioma removed from the meninges implicating the superior longitudinal sinus; cure was complete and unquestioned.[1] Results like this in the work of operators of world-wide reputation certainly justify the hope that much may yet be done for many cases of epilepsy, even some not accompanied by the usual symptoms of the Jacksonian variety. In the present state of our knowledge, however, we are compelled to limit operative work to cases in which we can find some gross lesion to account for the trouble and those peculiar cases preceded by an aura.

[1] One of my cases of tumor, reported in a previous lecture, was an angioma of the meninges which caused such severe epilepsy as to produce imbecility.

Sometimes the disease appears to be due to a scar upon the scalp, or cranial fracture without depression yet attended by irritation of the peripheral filaments of the trigeminus; these are the cases which recover from simple removal of nerve implication by what is designed as a merely exploratory operation—liberation of nerves from adhesions relieving the irritation which gave rise to the nerve storms.

Epilepsy due to old depressed fractures is not as promising as Jacksonian epilepsy, judged by results thus far recorded, yet in view of Laurient's statistics of 102 cases operated on with 54 per cent. cured, trephining is surely to be advised in every suspicious case. At this point I can not refrain from calling attention to the words of Agnew upon the subject of depressed fractures in their relation to epilepsy; he says—and too much emphasis can not be laid upon it—that it is not too much to assume that poor surgery is responsible for the great majority of traumatic epilepsies, because of bad treatment at the time of injury, the old doctrine that depressed fractures of the skull without symptoms of compression require no operative treatment, being responsible for the many unfortunate sequels. I quote his own language: "However small may be the depression which follows a fracture of the cranium, save in one or two locations, it will encroach enough upon the dural nerves to cause more or less irritation—which, though insignificant at first, and perhaps not at all recognizable to the consciousness of the patient, yet if unrelieved will be transmitted finally to the cortex and brain ganglia until at last the paroxysmal explosion will occur. . . . Whenever, therefore, in my judgment, the medical profession can accept the doctrine that *all depressed fractures of the cranium, however slight may be the depression, and entirely irrespective of pressure symptoms, are proper subjects for trephining*, then will traumatic epilepsy largely disappear." To-day, people will readily consent, even in the country, to operation at the time of accident if informed that a fracture of the skull is present, and as they become more familiar with the triumphs of aseptic surgery the mild objections now sometimes raised will disappear, and then indeed will the development of epilepsy due to depressed fracture be dependent upon the timidity or ignorance of the attending physician.

An injury to the frontal region, as well as to the motor zone, it must be remembered, is a very serious condition, and just as positively indicates operation; for 50 per cent. of non-trephined serious injuries to the frontal bone are said, by Garmany, to be followed by epilepsy, mostly succeeded by insanity. It may be truthfully added that 40 per cent. could be saved by prompt operative measures.

INDICATIONS FOR OPERATING.

Upon general principles it may be asserted that the sooner operation is made after the development of the epilepsy, the better the prospects of success; yet the lapse of a long time—even years—is not a strong contra-indication, as numerous cases have been reported where removal of the irritation cured the convulsions even many years after the irritation began.

The special indications for trephining in epilepsy are one or more of the following:

1. An intense headache, always located in the same limited area, either preceding or succeeding the epileptic seizure.

2. Well-defined Jacksonian epilepsy; where the attack invariably begins in the same group of muscles and then involves the whole body.

3. The existence of a pronounced and constant aura that may act as a localizing guide; as a numbness in one extremity, etc.

4. Traumatic injury to the cerebral cortex; as depressed fracture, etc.

5. Semi-paresis or paralysis of any group of muscles not definitely shown to be of peripheral origin.

6. Direct evidence of removable lesion in or near the motor area; tumor, abscess, etc.

7. Hemi-epilepsy, even of unknown cause.

8. Even in cerebral atrophies of childhood, according to Starr, the frequency of the attacks may often be greatly diminished, though not cured—being due to organic changes.

PRELIMINARY TREATMENT.

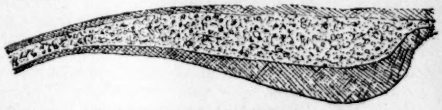
Before resorting to operation (except in cases so plainly indicating surgical measures as to be beyond question) the patient should be subjected to the proper medicinal treatment; at the same time be put under careful observation of attendants thoroughly instructed as to the points to be noted; and repeated personal examinations be made to determine the exact seat of the source of the epileptoginous disturbance. Unless the history of the case is perfect as to the part of the body first involved in the attack, the determination of this is the first object to be noted; not at all infrequently the patient feels the spasm beginning in the hand or the foot, or has a sensation of numbness or tingling in some particular part before unconsciousness begins, but in others no such premonition exists, yet the spasm uniformly begins in a certain group of muscles and then gradually spreads until a general convulsion is on; as in one of my cases, the paroxysm consisted only of a convulsive movement beginning in the right hand, extending until the whole upper extremity and face were involved, with loss of consciousness, but no general convulsion. To carefully note these details is the object of the observation which may have to be continued for several weeks before the necessary data can be obtained. A study of the subject of cerebral localization must coincidently be made if not *thoroughly* understood, or the services of a skillful neurologist engaged to assist in the case.

The medicinal treatment should consist of the administration of arsenic and the compound syrup of hypophosphites (National Formulary to be preferred), or other tonics which may be peculiarly indicated in any particular case. Bromids must be suspended for some weeks, so that the patient may be freed from their depressing effects. The patient is prepared for operation in the same manner as for any other trephining.

OPERATION.

After a large area of skull has been exposed over the proper region, search is made for external trouble and for fractures—as fissure of the skull so often occurs in apparently trivial injuries that there may be no history of an accident. Care must be exercised not to mistake a suture for the line of an old fracture as has sometimes been done. If any superficial source of irritation be found it is corrected in the special manner demanded by each individual case; excision of a scar in the scalp, liberation of nerves from adhesions, elevation of depressed fragments of bone, etc. Usually it is necessary to open the cranium.

If the skull be not too hard, the most speedy and satisfactory method of reaching the dura is by use of the gouge, but if it does not readily cut, the trephine is employed and a "button" removed somewhere near the affected region—*exact* location is not essential as the opening is to be freely enlarged; in fact, a large opening is generally preferable in nearly all cranial surgery, since simple relief from compression is almost invariably of benefit, even though no operation on the brain be made. Great care is taken in the use of the trephine in epileptic cases because the skull is likely to vary in thickness to a remarkable degree, even in the space of a half inch, as shown in this specimen mentioned in my last lecture as having been removed for the relief of epilepsy (case of osteoma). From this it will be seen how easily the trephine might injure the brain if applied near the end of the bony tumor.



Section of osteoma; actual thickness.

As soon as the dura is exposed the Keen's forceps are applied and the opening enlarged to at least one and a half by two inches. When sufficient bone is removed the dura is inspected. It may be that a depressed fracture has been relieved by removal of the bone—if so the impression in the dura shows it. There may have been a fragment of the inner table driven through the dura—if so, it is now visible. Osteophytes may have formed—if so, their presence is now discovered. Tumor of the meninges or cortex may be the cause of the convulsions—if so, the abnormal tenseness of the dura, or even its protrusion into the opening, is an indication for further exploration. The examination being completed, a large flap of the dura is now turned back, unless an extra-dural cause has been found and removed; and attention paid to intracranial abnormal conditions.

When it is evident that a depressed fracture has been corrected by removal of bone in the act of trephining, it may be taken for granted that the cause of epilepsy has been removed and no further procedure is permissible, unless some special reason exist for opening the dura—a step which adds greatly to the danger. So if the operator is satisfied, the scalp is closed with catgut drainage. But if spicula have been found projecting through the dura, the membranes are opened and fragments of bone extracted; it is not good practice to seize them and extract them by force, without first making a free opening in the dura; which is afterward sewed up.

Quite often osteophytes are found irritating the dura or the brain; in such case the dura is incised and the offending foreign bodies carefully extracted. Bleeding which oftentimes follows is quite copious and hard to control; a compress of gauze wrung from water at 105 to 110 degrees is applied with firm pressure for three or four minutes and usually is sufficient. In some instances it may be necessary to tie some vessel. If all other means fail, the tip of the Paquelin cautery may be applied, but it is objectionable and not to be recommended except as a *dernier ressort;* when used free drainage is always provided.

Tumors are excised in the manner described in the last lecture, the greatest care being taken to do as little damage as possible to the contiguous brain matter. Abscesses are evacuated, irrigated and drained.

Pachymeningitis, perhaps of many years ago, may be met with localized adhesions or effusion. If adhesions, they are gently broken up with much care not to injure the underlying brain; frequently, however, the cortex is very firmly attached to the membranes so that separation is impossible; when so, the particular part of the cortex involved is excised to the depth of a quarter of an inch by means of a very sharp knife or scissors. Iodoform is dusted in very freely after removal of the affected parts or separation of adhesions and the wound closed in such a manner as to secure primary union everywhere. If old meningitis with localized effusion be found, evacuation with irrigation, breaking up any adhesions present, and application of catgut drainage is all that can be done.

Sometimes—and this is occasionally true of very marked Jacksonian epilepsy—the most careful examination fails to show any focal lesion discernible by the eye or the finger; in such instances, Sachs asserts that excision of the affected area is the only rational treatment of the disease, and may prove wholly successful if long-continued irritation has not permanently injured other centers; and even if a complete cure is not effected, the frequency of the attacks may be diminished to the great comfort of the patient. The method is this: the motor area is stimulated by the application of electricity (an induced current from a Du Bois-Reymond coil furnished with one Daniell cell, or the Barrett chlorid of zinc battery) by means of two aseptic electrodes of platinum 2 millimeters apart. In handling these, the operator must envelop his hands in sterilized towels to prevent contamination; or better still they may be manipulated by an assistant who takes no other part in the operation, and who carefully protects the points from coming in contact with anything beside the brain after they are sterilized. As these electrodes are changed from one part of the motor area to another, careful observation will show response in each segment; when the particular spot is reached which causes motion in that part of the body first affected in the attack of epilepsy, the cortical and subcortical substance is excised. Bleeding is checked by gauze pressure or hot water—if not, the tip of the Paquelin cautery is applied sufficiently red to stop hemorrhage; the objections to the use of the cautery are that it requires drainage for some days, it causes a scar in the brain tissue much more marked than that following simple excision, and epilepsy may return as a result of excessive scar contraction. The wound is well covered with iodoform, closed with a few strands of catgut for drainage, and the usual dressings of sublimate gauze and cotton applied.

Following such an operation, paralysis of the extremity will occur; if a large area is cut away the paralysis will be permanent; if a small one, restoration of function may eventually be secured. There is considerable danger of death when a large amount of brain tissue is excised—much more than in removal of abnormal growths or deposits.

CASES.

In regard to Jacksonian epilepsy, one of my cases corroborates the assertion of Lucas Championierre that the symptoms do not always coincide with the location of the lesion. Briefly stated, the facts are these:

J. B., aged 13 years, when 5 years of age, fell and fractured his skull at the junction of the parietal and occipital bones. In spite of great depression of the fragment and long continued unconsciousness, the attending physician did nothing except to adopt the "expectant plan" of treatment. The child, however, made a rapid recovery from the accident and seemed in excellent health for some months. Then spasmodic movements were noticed from time to time in the hand and arm of the side opposite the head injury. These convulsive attacks increased in severity and extent until the whole side became involved and finally general epilepsy supervened. The epilepsy continued for years, the intellect finally becoming so impaired that the parents decided to consent to operation.

Upon reflecting the scalp I found a marked depression, which upon opening the skull was seen to affect the inner table much more than the outer, quite a fragment having been driven through the dura; this was found lying in a depression in the brain itself. After correcting this trouble, I extended the opening in the skull forward so as to permit examination of the Rolandic region. I could find no evidence of trouble here, so completed my work without further exploration. One severe general convulsion was noted on the third day, but though all antispasmodic remedies have been prohibited since there has been no further epileptic manifestation in a period of more than two years. I am therefore compelled to believe that the irritation was transmitted from the posterior parietal and upper occipital convolutions to the motor area.

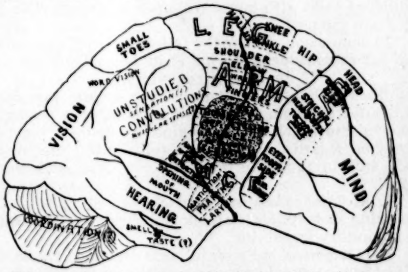


Figure showing known areas in the brain and position of tumor—purely diagrammatic.

The local irritation in this case was in the angular gyrus, the supramarginal convolution and the first occipital. Whether there was "word-blindness" or not I could not determine, as the boy had never learned to read, though he has since done so. There was no hemiopia.

Upon the other hand, one may *exactly* locate the disturbing lesion and come within a fraction of an inch of its center in opening the skull. Thus in the case of tumor, reported in my lecture upon that subject:

P. P. B., of Norris, Mo., 28 years of age, presented the history of rapidly developing epilepsy, due to brain tumor. The only localizing symptoms were: epileptic seizures beginning in the thumb and index finger of the left hand, the muscles of the eyelid and the angle of the mouth—these followed by the typical symptoms of *grand mal*. Upon these "pointers" then a trephine was applied; the center pin of the trephine could not be removed and so penetrated the inner table; when the button of bone was removed, revealing a sarcoma of the dura, the center-pin was found to have pierced the exact middle of the tumor as shown in the specimen here exhibited!

How was such accuracy possible? Or was it mere chance? Here was a case presenting symptoms in different parts of the body anatomically quite remote from each other. Why should they indicate with any degree of precision the location of the tumor?

Examination of the diagram which shows the exact situation of the malignant growth, reveals the fact that the centers which preside over these widely separated sections of the body lie in contiguous fields of the motor region; and as our methods of external measurements are almost as exact as our knowledge of cerebral topography it was an easy matter to decide where to reach the causative agent in this particular epilepsy.

A number of other interesting cases of epilepsy have been operated on by me, two of which I mentioned in speaking of brain tumor, but none of the others, I believe, have passed three years since this treatment was instituted—so the time has not yet come for making positive deductions from my own work. Yet the results as thus far seen are satisfactory in all but one case—a most dismal failure—and encourage me in the belief that I have done right in operating in every instance; for the amount of benefit already given in the brief interval of three years or less is enough to repay for the time and trouble even though a return of the convulsions should yet occur. But I am satisfied a number of the cases will terminate in cure and I certainly shall continue to practice surgical treatment in every appropriate case, unless I meet with more evidences of failure than I have in the past.

In conclusion, I offer the following brief synopsis of our present ideas of what should constitute the

RULES FOR TREPHINING.

When to Operate.—1. An epileptic seizure invariably affecting a single group of muscles, or a general convulsion which always begins in a definite region may be regarded as sufficient guide to trephine over the area of the brain presiding over that particular part.

2. An intense *localized* headache preceding or succeeding each epileptic attack is sufficient to warrant exploratory trephining.

3. If a general epilepsy follow a depressed fracture the trephine should be advised—though results have not been, upon the whole, particularly brilliant.

4. In general convulsive epilepsy if paresis or paralysis of any group of muscles follows (even temporarily) an attack, trephining is admissible at the point indicated by cerebral localization.

5. Perversions of hearing preceding a convulsion (auditory auræ) point to trouble in the temporal lobe; exploratory trephining may have to be done upon both sides of the head.

6. Hallucinations of vision (visual auræ) strongly indicate lesion in the occipital convolutions.

7. An aura consisting of a disturbance of taste or smell justifies inspection of the temporo-sphenoidal lobes of both sides.

8. Aphasia (which may persist but for a moment or continue for several hours) sometimes is met as a symptom, and imperatively demands exposure of the left third frontal convolution.

When not to Operate.—1. No operation is justifiable in general epilepsy without some localizing sign and not dependent upon discoverable injury to bone.

2. Operation should not be performed in epilepsy which is clearly due to old pachymeningitis—the risks are too great in proportion to the good results to be anticipated.

3. Operation is not to be advised when there is a history of a previous lepto-meningitis (either traumatic, syphilitic or tubercular).

ORIGINAL ARTICLES.

CLINICAL NOTES ON PSORIASIS, WITH ESPECIAL REFERENCE TO ITS PROGNOSIS AND TREATMENT.

Read before the Medical Society of the State of New York, Feb. 7, 1895.

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In his recent work upon the treatment of syphilis, Professor Fournier makes the remark; that too little attention is often paid to the real treatment and cure of the disease, and that too many physicians and patients are content with only the removal of the symptoms as they arise; it thus happens that in relatively few instances is the treatment of syphilis carried out in a patient and thorough manner to a cure. It is within the memory of quite young men when that disease was regarded as incurable, and it is only within the last decade that definite rules have been established (largely through the work of Fournier) which, if accurately carried out, will commonly result in the radical cure of syphilis.

Much the same may be said in regard to psoriasis; for, thus far, physicians and patients have been far too often satisfied with attempting to remove the eruption as it recurs, again and again, and commonly far too little study and attention has been given to the underlying cause and its removal. And yet I believe that the time has come when the treatment of psoriasis should be placed on a much more certain and definite basis than is now generally accepted, and the influence of diet and hygiene in its production recognized and when, consequently, we can offer to our patients much more encouragement as to a real cure of the trouble.

To the end of understanding better the clinical relations of psoriasis, and therefore its treatment and prognosis, I have made a study of my recorded notes of 366 cases in private practice, which have been under my personal observation and care. These cases occurred among 9,483 miscellaneous cases of skin disease, making it to form almost 4 per cent; it thus comes fourth on the list as to frequency, after eczema, acne and syphilis.

In a recent clinical study of 1,000 cases of psoriasis [1] occurring among 25,443 cases of miscellaneous skin diseases in my public and private practice together, the proportion in public practice was found to be 3.69 per cent.

The ages of these 366 patients at the time of applying for treatment is shown in the following table:

TABLE I.—AGES OF 366 PATIENTS WITH PSORIASIS.

	M	F	T
5 years and under	1	0	1
5 to 10 years	2	4	6
10 to 15 years	3	12	15
15 to 20 years	17	29	46
20 to 25 years	28	30	58
25 to 30 years	35	28	63
30 to 35 years	43	19	62
35 to 40 years	27	9	36
40 to 45 years	23	4	27
45 to 50 years	16	2	18
50 to 55 years	7	5	12
55 to 60 years	3	4	7
60 to 65 years	2	5	7
65 to 70 years	3	2	5
70 to 75 years	1	1	2
Unknown age	1	0	1
Total	212	154	366

[1] Trans. Congr. Internat. de Dermat. etc., Paris, 1889, p 878; also Maryland Medical Journal September and October 1891.

It is here seen that males are affected with psoriasis more frequently than females, there being 212 males to 154 females, respectively 57.92 and 42.07 per cent.

The youngest patient seen with the disease was a male nearly 5 years of age, the oldest also a male just 75 years old. The largest number of patients applied for treatment between the ages of 25 and 30, when there were 63 patients or nearly 18 per cent of all the cases; but there were also almost as many cases during the five years of life before and after this period. Thus, together, during the fifteen years between 20 and 35 years of age there were 183 cases, or exactly one-half of the entire number.

It is impossible, however, to draw from this table any exact conclusion in regard to the age of the patient at which psoriasis is most likely to develop for the first time, for in many instances the disease had lasted for many years before coming under treatment, as will be seen in a later table. In the next table, II, is given the age at which the eruption first appeared, according to the statements recorded in the notes of the cases:

TABLE II.—AGES OF 366 PRIVATE PATIENTS WITH PSORIASIS, AT WHICH THE ERUPTION FIRST APPEARED.

	M	F	T
During infancy	5	0	5
1 year to 2 years	1	1	2
2 to 3 years	2	2	4
3 to 4 years	2	3	5
4 to 5 years	2	4	6
5 years and under	12	10	22
"During childhood"	4	3	7
5 to 10 years	14	18	32
10 to 15 years	22	41	63
15 to 20 years	48	28	76
20 to 25 years	42	16	58
25 to 30 years	19	14	33
30 to 35 years	23	5	28
35 to 40 years	10	5	15
40 to 45 years	7	1	8
45 to 50 years	5	4	9
50 to 55 years	2	4	6
55 to 60 years	1	2	3
60 to 65 years	1	2	3
Not stated	2	1	3
Total	212	154	366

These cases are, perhaps too few to permit any very definite conclusions to be drawn from them, as to the first development of the disease, but a little study of the table develops many items of interest.

The disease belongs principally, to the early formative period of life. Thus, it is seen that in the largest number of instances, namely 76, or over 20 per cent. the eruption was first observed in the period between 15 and 20 years of age, and in a very large number, 63, between the ages of 10 and 15, while, the eruption first appeared in 197 cases, or almost 55 per cent. of the whole, between 10 and 25 years of age. After this period the number of cases diminishes very rapidly, there being only twelve patients in whom the eruption first appeared after 50 years of age. It is seen, however, that there are relatively few cases during very early life, there being only twenty-two instances in which it appeared before the age of 5 years. These facts appear quite opposed to the statement of Neumann[2] who asserts that the eruption generally appears about the sixth year of life.

It is a little curious to note that while the females are largely in excess between the ages of 10 and 15, in the next period of five years the number of males is nearly double that of the females; while, between 20 and 25 the males present nearly three times the number of cases found in females. The question arises whether the great difference relates in any way to the effect of the later development of the sexual function in males than in females.

Psoriasis is known to be one of the most rebellious of all skin diseases; beginning often quite early in life it may persist indefinitely, even in spite of active treatment, and often wears out the patience both of the physician and patient. In a certain small proportion of cases it will seem to disappear even without treatment, and to remain absent for varying periods, perhaps entirely. Such cases are, however, very rare, and the disappearance of the eruption seems to depend on some radical change in the mode of life, or sometimes follows a change of abode. A prolonged residence in a warm climate will occasionally arrest the disease, but it is liable to recur on return to a colder or more changeable climate. In some cases it becomes less pronounced after middle life and may become confined to a few lesions, giving little annoyance.

The duration of the eruption at the time of applying for treatment is shown in the next table, III:

TABLE III.—DURATION OF PSORIASIS IN 366 CASES AT THE TIME OF APPLYING FOR TREATMENT.

	M	F	T
Under 1 month	7	8	12
1 to 3 months	0	0	0
3 to 6 months	7	5	12
6 months to 1 year	20	15	35
1 to 2 years	10	14	24
2 to 3 years	9	8	17
3 to 4 years	15	9	24
4 to 5 years	12	9	21
5 to 10 years	42	42	84
10 to 15 years	25	22	47
15 to 20 years	23	15	38
20 to 25 years	19	3	22
25 to 30 years	10	2	12
30 to 40 years	8	2	10
40 to 50 years	2	1	3
50 to 60 years	0	1	1
Not stated	3	1	4
Total	212	154	366

This table fully bears out the chronic character of the disease, for there appear cases in it which had lasted thirty years or more at the time of first observation; in a very large number of instances eighty-four or nearly one-quarter of the entire number, the eruption had existed from five to ten years previous to the first visit.

The natural history of psoriasis is therefore to be reckoned by years rather than by days and months. Thus, of these 366 cases, no less than 221, or over 60 per cent. had lasted for five years or over.

Comparatively few cases were observed at or soon after the first appearance of the eruption, only twelve cases during the first three months, and only twenty-four cases in all during the first six months of the existence of the eruption. It will be seen later, that this is a fact of no little importance in connection with the proper treatment of the disease and its prognosis. Something more can be learned in regard to the obstinacy of the complaint by a consideration of the periods of time during which these patients were under observation. These are shown in the following table, IV:

[2] Neumann Lehrbuch der Hautkrankheiten, Wein, 1873, p 259.

TABLE IV.—DURATION OF OBSERVATION OF 366 PATIENTS WITH PSORIASIS.

	M	F	T
1 month or less (74 seen but once)	95	45	140
1 to 3 months	6	15	21
3 to 6 months	14	16	30
6 months to 1 year	32	28	60
1 to 2 years	18	12	30
2 to 3 years	7	8	15
3 to 4 years	8	3	11
4 to 5 years	5	4	9
5 to 10 years	16	13	29
10 to 15 years	6	7	13
15 to 20 years	4	2	6
20 to 30 years	1	1	2
Total	212	154	366

Here it will be seen that a large number of the cases were seen but for a short time, 191, or over one-half, for a period less than six months, and of these, 74 were seen but once, and many others but two or three times. In looking over the notes of these cases, we find that some of them yielded to treatment and were apparently cured even in a short time, while many were lost sight of before any conclusions could be reached as to the value of treatment. In many of the cases which were for a longer time under observation, the notes show it was often for recurrences of the eruption, for these patients are commonly satisfied with its disappearance, and are seldom willing to undergo prolonged medical supervision with a view to the cure of the disease. In studying the records of these cases we find that in proportion to the length of time the disease has already continued, either before or while under observation, in about the same degree will the eruption resist treatment; in other words, as the disease becomes engrafted on the individual, the results are less satisfactory, much as is observed in connection with gout, with which, as we shall see, this eruption is frequently closely allied and, indeed, often closely connected.

This brings us to a brief consideration of the nature of psoriasis. Any one who has followed out cases of the disease during a period of years must be convinced that it is not a local affection, in the sense in which we speak of epithelioma, verruca, the parasitic eruptions, etc., and it is certain that it is not due to any specific poison introduced from without, as in the case of syphilis and leprosy, nor is there any definite evidence that it is of malarial origin.

Every evidence points to the fact that it must depend upon some internal cause, which at one time or another produces the changes in the skin. Unless, therefore, measures are taken looking toward the alteration or removal of the internal or general condition underlying the disease, we can not hope for a permanent cure. All have been disappointed again and again by the recurrence of the eruption, even after its complete disappearance under local treatment, and all acknowledge the futility of local measures to prevent its appearance or development.

What the exact underlying cause of psoriasis is, we are not yet prepared to say, but advances are being slowly made in this direction.

Heredity has been commonly supposed to have a very great influence in its production, and many writers state this with considerable positiveness. But as far as I can learn by a study of the cases here analyzed, as well as also from the much larger number seen in public practice, this element is of relatively little importance. Notes have been taken of all my private cases, and in most instances the patients have been carefully interrogated, both as to the positive and negative aspects of this question. The results are tabulated in the following table, v:

TABLE V.—HEREDITY OF PSORIASIS.

	M	F	T
Cases with anterior heredity	28	16	44
Cases with posterior heredity	6	6	12
Cases with no history of heredity	131	111	242
Unknown or unrecorded	47	21	68
Total	212	154	366

ANTERIOR HEREDITY.

	M	F	T
Parents affected	22	15	37
Grand-parents affected	3	0	3
Parents and grand-parents affected	3	1	4
Total	28	16	44

POSTERIOR HEREDITY.

	M	F	T
Children affected	6	6	12
Grand-children affected	0	0	0
Total	6	6	12

COLLATERAL HEREDITY.

	M	F	T
Cases with brothers affected	23	13	36
Cases with sisters affected	25	12	37
Cases with collateral relatives affected	3	6	9
Total	51	31	82

Here we see that of 366 cases only 56 showed any anterior or posterior heredity; in 68 cases there was no definite record, while in 242 cases, or over 66 per cent., there was no history of heredity, either in immediate ancestors or children, and in only 15 per cent was there any assurance that this had occurred. This certainly is not any greater proportion of concurrence than could be traced in many diseases, and bears no comparison with that found in eczema. In regard to collateral heredity we find 82 cases in which this was recognized, a no larger proportion than might be expected among brothers and sisters brought up under similar conditions as to diet, hygiene, etc.

As remarked before, it is often very difficult to determine with certainty the underlying causes which operate to produce the eruption, for it is observed in those presenting such widely diverse conditions of life, and under the greatest variety of circumstances. It develops with about equal frequency among the poor and the rich. Not only will it appear after exhaustive diseases, after pregnancy, and in those debilitated by various excesses, but it comes also in subjects who are apparently in the best of health and enjoying the surroundings of a healthy and apparently proper life. No single cause or element, or any combination of causes or elements can be traced in every case. The evidence increases, however, that it is more or less closely allied to the blood states which are known as the gouty and rheumatic, and we can often clinically identify the cases belonging to one or the other of these classes. Upon our recognition of the base upon which the disease rests will depend necessarily our success in treatment and consequently our prognosis.

Undoubtedly the most common systematic condition found is that associated with the still little understood suboxidation process, which underlies or is akin to that found in gout.

Sir Henry Holland[3] says: "I can not doubt from my own observations that certain of these (skin)

[3] Holland, Medical Notes and Reflexions, Philadelphia, 1857, p. 212.

disorders often occur as the result of the habit in question (gout). I have so often seen psoriasis, for example, occurring in gouty families—sometimes alternating with acute attacks of that disease, sometimes suspended by them, sometimes seeming to prevent them in persons thus disposed, that it is difficult not to assign the same morbid cause to these results."

Dr. Garrod[4] believes that psoriasis is, perhaps, the most frequent form in which the cutaneous (gouty) disease manifests itself, and that there are many cases in which the skin and joint affection are alternated.

Sir Thomas Watson[5] speaking of psoriasis and lepra says: "I believe that they sometimes depend upon the presence, or the generation of an excess of acid in the system; and that they are often cured by alkalin remedies, I am sure."

Prout[6] mentions the alternation of leprous and scaly skin diseases with deposits of phosphate of lime in the urine, in patients who have been subject to gout and rheumatism, the urinary affection becoming better as the cutaneous affection has become worse, and vice versa.

I have purposely quoted from these older writers, rather than from those of recent date, better known in connection with diseases of the skin, because the tendency of modern specialism has been rather in the direction of the minute study of local lesions, and of the local causes of diseases of the skin and away from constitutional conditions, and consequently the so-called humoral views of older writers have been rather overlooked of late.

These who have been quoted, (and the number could be greatly increased if desired) were general practitioners and teachers of prominence, and all were experienced and accurate observers, and their opinions should have weight in this, as they have in other matters.

These observations, and others made by equally careful and acute observers I can, to a good measure, indorse by my own experience, and many cases in my own practice abundantly confirm their truth. As yet, however, no perfectly well-defined statements can be made as to the precise condition which may be looked for in all cases, even in those which present symptoms which may be looked upon as gouty; but I believe that real advances will be made in proportion as they are recognized and treated.

The urine is often a most valuable guide in the recognition and treatment of the acid state which underlies many cases of psoriasis, and should receive more attention than is commonly the case in the management of this disease. In my recorded observations of the urine of patients with psoriasis, this excretion was seldom such as could be regarded as that of health, and although an analysis of the data does not show any very great uniformity in the deviations from the normal, the changes found were such as one should expect in those functional derangements of the liver and other organs which have to do with the metabolic processes in the system. The specific gravity in them varied greatly, ranging from 1008 to 1040; in relatively few instances was it below normal, and very generally it was much above the normal point, a gravity from 1030 to 1035 being not infrequent; it was common to find a very great difference between various specimens from the same patient. Albumin was found but once; sugar was not found at all, even in specimens with the highest specific gravities, the increased weight being due to urea and organic salts.

In most of the examinations I have found very decided hyper-acidity, with crystalline deposits of uric acid, urates, oxalate of lime, and occasionally stellar phosphates. The cases which present this acid state of the system well marked are commonly characterized by a congested state of the eruption, often attended with burning or itching, and present a marked contrast to the sluggish and indolent eruption shown by those exhibiting simple debility or the strumous state. It is not possible, as yet, to determine and express the differences presented by those in whom the acidity takes the rheumatic form; clinically they resemble the gouty cases, but often the rheumatic element will be manifested more or less acutely in the joints or otherwise, of which I have known some striking examples.

Whether there is really any difference in psoriasis found in these three commonly recognized states, is difficult to determine. I myself am inclined to think that there is but one cause for the eruption, the acid blood state belonging or leading up to gout; this may be developed more or less in the rheumatic and strumous, as well as in those where its fuller development ends in gouty deposit in, or inflammation of the small joints.

As may be supposed, the treatment of psoriasis will depend very largely upon the recognition of the blood state, or condition upon which the disease depends. While most persons with this eruption will appear to be in perfect health, I believe that there is always some departure from the normal which can and should be discovered and reached if the disease is really to be cured. In many instances the eruption depends wholly upon pure debility, and a prolonged and most careful tonic course will ultimately overcome the difficulty. In the gouty and rheumatic class of cases, undoubted benefit results from a prolonged and faithful alkalin course of treatment, with such remedies as meet the underlying blood state. In many cases a strumous habit will be at the bottom of the trouble, the faulty metabolism being dependent on this, and cod-liver oil, phosphates, etc., will be needed, alternated occasionally with alterative doses of mercury. I do not allude to cases of syphilitic skin lesions, which often closely resemble the eruption in question, for these have nothing to do with it and should never be spoken of as syphilitic psoriasis. A number of writers have reported the cure of psoriasis with full and prolonged doses of iodid of potassium, others have praised antimony, while the number and variety of remedies which have been advocated in this disease are so great that the mere enumeration of them would occupy and waste much time and space; their very number and variety indicate the difficulties attending the treatment of psoriasis, and that there must be causes which are not yet fully understood.

There is certainly no single specific for psoriasis, although arsenic seems to come nearer to this than any one remedy; when given in full and persistent doses it often serves to remove the eruption, and to keep it in abeyance. Arsenic is a very safe remedy, as the drug is eliminated almost immediately from the system, largely by the urine and, as far as I can

[4] Garrod, Reynolds' System of Medicine, Philadelphia, 1868, vol. I. p. 824.
[5] Watson, Practice of Physic, Philadelphia, 1858, p. 1295.
[6] Prout, Stomach and Renal Diseases, Philadelphia, 1843, p. 221.

learn, no ultimately toxic effects occur even from its free and prolonged use. In one instance a patient of mine, a gentleman in whom the eruption began at 22 years of age, took nearly eight ounces of the pure Fowler's solution in a single year; and some time ago he calculated that he had taken over half a gallon of pure Fowler's solution in the course of fourteen years.

But arsenic constantly fails either to remove the eruption or to prevent relapses, nor could we expect it so to do, for the most that arsenic can do is to so control the nerve elements that they shall not be irritated by the acid condition of the blood; when its use is suspended or when it loses its controlling effect, the same condition returns as before. In cases where arsenic has seemed to cure the eruption, the blood state which called forth the skin lesions had probably been of but brief duration, and the arsenic had aided the tissue in returning to the normal.

In psoriasis, therefore, the patient should be studied, rather than the eruption; his diet, habits of life, the state of the emunctories, the condition of the nutrition, and many features which a careful physician notes and takes into consideration in connection with other complaints. My plea is, that one who approaches a case of psoriasis should by no means be content with alone recognizing the local conditions of the skin, and prescribing local measures to benefit them, but that, with broad medical knowledge, he should study the patient and seek to rectify the causes back of the local manifestation on the skin.

Time and space fail to fully develop here the details of this interesting and most important part of our subject, but a few of the most practical matters may be considered.

As may be judged from what has preceded, alkalies should never be neglected in psoriasis. They should not be used sparingly but, taking the urine as a guide, they should be pushed with judgment, and be continued long enough to effect the desired result. Potash, lithia, soda, in various forms and combinations, are remedies of incalculable value in this disease.

But it would hardly be expected that any one remedy or group of remedies would cure a disease which has been such a *bete noire* to the profession; alkalies alone will not accomplish this, but their free use is only urged in connection with other measures. While we know that alkalies are of benefit in gout and rheumatism, we know also that their simple exhibition, without due reference to other remedies, and dietetic and hygienic regulations, will never permanently cure either of these complaints.

In psoriasis, therefore, they must also be given in combination with and alternated with other remedies. Colchicum is often a great aid, and in sthenic cases aconite often assists greatly; prolonged alkalin treatment will often result in more or less anemia, and iron and manganese will also come in as adjuvants, while strychnia, phosphates, cod-liver oil, and many tonics and reconstructives may be needed in fully overcoming the disease.

The proper use of water will also aid in the treatment. The acidity of the urine, as is known, is modified by free dilution, and the changes of assimilation and disassimilation which are at fault in psoriasis, are hastened and improved by the free passage of water through the system. Treatment by means of mineral springs has long been a favorite one in psoriasis, and undoubtedly many cases have been greatly benefited by the use of medicinal waters of many and various kinds.

One objection to the treatment of psoriasis by means of visits to mineral springs is that, as a rule, these visits must necessarily be short, and while they may possibly be of service at the time, it is impossible in this brief period to so modify the system that the eruption shall not return when the active treatment is omitted; the patient is often thus misled into a neglect of the proper protracted course of treatment which can alone be of permanent benefit. After many visits to many mineral springs, in this country and Europe, I have become more and more convinced that the single element which is of value is the water common to them all. I, therefore, advocate the free use of common water to psoriasis patients taken, as at the springs, hot, and on an empty stomach, a half to an hour before meals. When very convenient to the patient, I also advise visits to mineral springs as an adjuvant, during the summer months, when the regular treatment is apt to be neglected, owing to absence from personal supervision.

But, as in pronounced gout, simple medication will not remove and keep away the disease without aid from diet and hygiene, so in psoriasis these aids are necessary. The effect of a full and stimulating diet is often shown in psoriasis by a rapid increase in the eruption, in its congested and irritable character, and in the freer production of scales; whereas a light and unstimulating diet, with total abstinence from alcohol, will often be followed by an improvement in the eruption. Everything which contributes to the production of an acid state of the system also tends to increase the skin difficulty, and every indulgence in sweets, pastry, fermented wines and beer or spirits may precipitate an attack and will always aggravate the existing eruption.

Excessive meat eating will also increase the disease which, however, will frequently improve with much greater rapidity under the same treatment as before, when the quantity of meat taken is greatly lessened or when it is entirely cut off. I have a considerable number of psoriatic patients who have taken no meat, or only very little fish and white meat of poultry, with the result of being free from the eruption for a long period of time. Fatty matter, however, if properly digested, will aid in removing the diseased state.

Hygiene is also often of importance in psoriasis. This includes proper attention to the clothing worn, to exercise, and to the mode of life. Pure wool should be worn next to the skin, to prevent all chilling of the surface and check of perspiration, which I have repeatedly seen followed by outbreaks of the eruption. Exercise should be moderate, but sufficient to keep the circulation active, and this will often need to be inquired into and directed by the physician, as also the general mode of life, hours of eating and sleeping, etc.; for few patients fully understand or carry out the rules conducive to a perfectly healthy life. A warm and equable climate undoubtedly conduces to the cure of the disease, and raw and damp cold climates, and sudden changes of season, tend to develop and perpetuate the disease. I have known patients to remain quite free from the eruption as long as they resided in the tropics.

The local treatment of psoriasis is undoubtedly very

important; very much can be done by it in the way of more rapid removal of the eruption present, and their use should never be neglected. Many remedies, including chrysarobin, pyrogallic acid, salicylic acid, naphthalin, gallaceto-phenon, aristol and others, all are of great value, and by means of one or the other of them the eruption may often be promptly removed. Bathing of various kinds, including sea bathing, is also of much assistance. But it would lead beyond the limits intended, to consider these in this paper, which is intended to show the importance of constitutional rather than local measures in obtaining the really best results in psoriasis.

The prognosis of psoriasis has always been most unsatisfactory. While all recognize that the eruption may be removed again and again by local treatment, the majority of writers imply, if they do not assert, that the disease is very uncertain of cure; and I find that this view of the case is taken more or less strongly in proportion as the writer emphasized more or less strongly the value of local treatment.

But to return to the remarks made at the opening of this paper: as in the case of syphilis the ultimate cure depends largely upon the intelligence, faithfulness and persistence put into the treatment by both the physician and patient, so in the case of psoriasis, its cure depends upon the same elements.

I believe that psoriasis can and should be cured; but, as in the case of syphilis, relatively few cases are cured so as to never give further manifestations, so in psoriasis it is often extremely hard for the patient and physician to patiently persist in the plan of treatment which will end in a permanent cure.

It is very difficult, indeed next to impossible, to give any statistical presentation in regard to the cure of the cases which have been here analyzed, for in a consultation practice, drawn from many quarters, the patients are so commonly lost sight of and so rarely seen when freed from this trouble, even as in olden time only one of the ten lepers returned to give thanks for his cure. But from a considerable number of cases with whose later history I am acquainted, I feel positive that sufficient knowledge, care and patience on the part of the physician and patient will result in the real cure of this complaint, which has too often been relegated to the now lessening category of incurable diseases.

4 E. 37th Street.

PHENACETIN AS A TOXIC AGENT.

Read before the Section on General Medicine of the Texas State Medical Association at Dallas, April, 1895.

BY DAVID CERNA, M.D., PH.D.

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Phenacetin has such a wide range of usefulness as a remedial agent, that it may not be uninteresting to bear in mind some of the toxic effects which the drug is liable to produce. Notwithstanding the fact that phenacetin (with the exception, perhaps of phenocoll) seems to be the least poisonous of the coal-tar derivatives, yet in sufficiently large amounts it may cause serious after effects and undoubtedly, death.

With the collaboration of Dr. William S. Carter, I have carefully studied the physiologic actions of phenacetin in an extended series of experiments upon the lower animals.[1] Dr. Carter and myself did not notice marked untoward symptoms, even when the remedy was administered in comparatively large doses, nor did we observe any particular changes in the character of the blood itself, changes which, according to other investigators are sometimes produced. Later observations, however, lead me to the belief that phenacetin, especially in large quantities does cause alarming symptoms, chief among which may be mentioned a markedly disordered circulation accompanied with symptoms of collapse. These symptoms have been noticed both in the lower animals and in man.

The fact must not be lost sight of that phenacetin may be adulterated with acetanilid, and other substances, and it is possible that to this adulteration may be due some of the poisonous effects attributed to the drug in question, as reported by various writers. Thus in a case published not very long ago,[2] in which serious symptoms of poisoning were observed, it was found that the powder given as pure phenacetin consisted really of equal parts of this remedy and of acetanilid. Again, Reuter[3] has called attention to the fact that phenacetin contains at times some unconverted paraphenetidin, this latter substance producing, even in small doses, toxic effects, especially nephritis with albuminuria.

But be all this as it may, experimental investigation and clinical evidence have shown that phenacetin *per se* exercises a toxic action, particularly when it is ingested in excessive quantities.

Kingsberg and Kast[4] found that large amounts of phenacetin produced in dogs an irregular gait, rapid respiration, vomiting, somnolence, cyanosis and discoloration of the blood, asserting that this latter phenomenon was due to the conversion of hemoglobin into methemoglobin. The same opinion is entertained by Hare[5] in his able essay. Muscular weakness under the influence of phenacetin, probably due to a spinal action, has been observed by Mahnert.[6] Hoppe[7] has reported a case, that of a student, in whom two grammes (30 grs.) of the drug caused insomnia, weakness, inability to stand, and a slight ptyalism. Hollopter[8] records the case of a woman, who, having taken about a gramme and a half (22 grains) in the course of six hours, showed the following symptoms: great dyspnea, general marked lividity, restlessness, precordial pain, inability to stand, involuntary defecation, dilated pupils, cold perspiration. She finally recovered under the use of ammonia and alcohol. The blueness of the surface of the body, however, lasted for more than three days. For over a week the patient was unable to be around the room, convalescence being very slow. Mahnert[9] has observed urticaria, and Hare[10] has seen large wheals, following the use of phenacetin.

Through the courtesy of a brother practitioner (whose name I have been requested to withhold), residing in a prominent city of the State of New York, I am enabled to report the following highly interesting case of phenacetin poisoning, which seems to corroborate much of what has already been stated in regard to the matter:

A healthy mother who had given birth to two

[1] Notes on New Remedies, September, 1892.

[2] London Lancet, Dec. 20, 1890.
[3] Pharmaceutis. Zeitung, March 21, 1890.
[4] Centralbl. f. Gesammt. Therap., April, 1887.
[5] Fever: Its Pathology and Treatment, 1891.
[6] Deutsch. Med. Wochenschrift, XIV, 1888.
[7] Therap. Monashefte, II, 1888.
[8] Medical News, 1889.
[9] Loc. citat.
[10] Loc. citat.

healthy children, which had thriven and are now living, was delivered early in the year (1895) of a child weighing six and one-half pounds, after a two and a half hours labor. The presentation was R. S. P., the legs extended against the front of the body, the placental insertion low and posterior, as diagnosed before labor by the location of the round ligaments and confirmed by the clean cut hole in the membrane close to the placenta found after delivery. A large amount of liquor amnii was present. The child was very rapidly expelled by pressure on the fundus; the delivered parts were enveloped at once in flannel, without traction; the flexed arms were slipped out readily; complete flexion of the head was maintained by pressure through the abdomen and on the face, so that no traction was made on the neck (Wigand-Martin method) and the funic pulse was certainly not arrested two minutes up to the time when the mouth was brought up to the vulva, swept clean, and the child began to breathe. Then the head was very slowly shelled out. At no time was much force required, at no time was the child cyanotic, and at no time was there any indication of convulsive movement or attempt at respiration before birth. A good pink color, regular respiration and heart action, were present from the first, so that it is not in the least likely that cerebral or spinal injury, or inhalation pneumonia, could have accounted for the subsequent cyanosis. The child did well until its fifth day, losing less than half a pound. On the fifth day a slight diarrhea developed, without temperature and without sepsis from the navel, which sloughed off that day. Three grain bismuth powders three or four times a day were ordered for the diarrhea. They were in a pink box which had been used for the other child, about a year old at this time. On the sixth day, four of the powders were given, making seven in all, the diarrhea ceasing. On the night of the sixth day the baby was very fretful and somewhat weak, and purplish in color. On the seventh day the eyeballs were jaundiced, color dusky, and the child restless, but otherwise her actions were entirely normal except for some hebetude. The digestion was good, the pulse of fair quality—130 to 140—the temperature in the rectum, respiration, and pupils normal; but on the seventh and eighth days the lips and finger nails were black and the extremest cyanosis was present. On the eighth day, Prof. Charles Jewett went over the case carefully, confirmed the statement that the lungs were entirely clear, and found nothing whatever to account for the condition. On this day bloody urine in large quantity was passed. The prognosis was very bad and the child looked as if it could live but two or three hours at most when seen by Professor Jewett. Without much hope, oxygen was ordered. On the ninth day it was seen that during the night, after about the fourth application of oxygen (ten minutes out of each half hour) that the color had somewhat improved with each administration, and the action was distinctly soothing. The stools on this day became of a coffee color, the temperature 100⅘ degrees F., and the baby, as always nursed well.

From this time on the baby had ups and downs, the cyanosis continuing but never as grave in degree. The case had practically no history except the cyanosis of varying intensity. The oxygen was efficient for only two days. On the eleventh day the promise was brighter, the child not pink, but the duskiness distinctly less, though from this time on marked jaundice was present, with less color in the urine, anemia of a very high degree, and pronounced weight-loss. The pulse about this time was weak for a couple of days, at no time above 150, and the temperature never above 100⅘ degrees F. Before the thirtieth, the original weight was regained, and by the fiftieth the anemia was nearly gone.

Just after the consultation, the physician, author of the foregoing report, found two powder boxes of exactly the same appearance; one labelled, "for baby's diarrhea, three or four times a day," and the other labelled, "For the other child's fever and pain —not over three a day." The nurse then found that she had given seven 2 grain doses of phenacetin, instead of seven 3 grain doses of bismuth; on the first day, 6 grains, on the third day 8 grains, and that it was on the night subsequent to the last dose in the evening, that the cyanosis began.

Somewhat elaborate details concerning the delivery, etc., have been given in order to show that no injury during delivery, or other cause, could explain the condition of the little patient adequately. It was, undoubtedly, a pure case of phenacetin poisoning.

No comments seem necessary on the above report. It may not be out of place in this instance, however, to recall the observations of Reuter[11] regarding paraphenetidin which phenacetin sometimes contains as an impurity, and which, it is believed, causes toxic effects even in small quantities. The author just referred to gives the following method for the detection of paraphenetidin in phenacetin; "2.5 grammes (38⅘ grains) of chloral hydrate are melted in a small test-tube on a water-bath, and 0.5 gramme (7⅘ grains) of phenacetin added. Upon shaking, a solution will be formed, and if the phenacetin be absolutely pure the solution will remain colorless for at least five minutes, but after that time will assume a rose-red color. If, however, the paraphenetidin be present, and it be exposed to the same temperature on a water-bath for not more than two or three minutes, the solution becomes colored, according to the quantity of contamination present, into more or less intensely violet, varying from a red violet to a blue violet."

In conclusion, I may be allowed to remark that in cases of poisoning by phenacetin, cardiac and, more especially, respiratory stimulation by drugs would be useful. The results obtained in the case herein reported, in which oxygen inhalations seemed to do well, and in that reported by Hollopter, in which stimulation by ammonia and alcohol acted efficiently also, are self-explanatory. In a given case, prolonged artificial respiration as a last resort would seem to be particularly indicated.

AN AURAL MASSEUR.

BY CHEVALIER JACKSON, M.D.
PITTSBURG, PA.

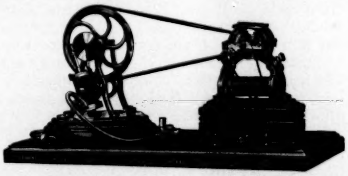
The accompanying illustration shows an instrument which has yielded me splendid results in the treatment of non-purulent middle-ear disease during almost three years. Until I devised it, I scarcely knew what to do with the class of cases that come with a story something like this: "Doctor, I came to see if you could do anything for me. I am hard of

[11] Loc. citat.; also Annual of the Universal Medical Sciences, 1892.

hearing and have annoying noises in my ears. I am told that both my throat catarrh and Eustachian catarrh have been cured. My general health is good. Yet my trouble is growing worse. I have a bag and have Politzerized myself until I am sick of it. I seem to have gotten all the benefit that it will yield me. Can you do anything for me, Doctor?"

I had often been at "my wits' end" trying to suggest or do something that had not already been suggested or done in such cases. But for nearly three years past I have been able, with the aid of the instrument illustrated, to get results that seemed marvelous considering the obstinacy and chronicity of this class of cases.

The action of the instrument is practically on the principle of pneumatic massage. I used to apply pneumatic massage by means of either a Sieglé speculum or a bit of rubber tubing—in either case operated by the mouth; rather an indelicate procedure. Then I tried operating them with a syringe. I have also used the Delstanche. But with none of these did I get anything like the results that I have since obtained from the use of this masseur.



Its construction and operation will be readily understood from the following description, by reference to the cut: it consists essentially of a cylinder oscillating on a central pivot, and within this cylinder a piston moved up and down, by being connected with a revolving crank disk. Motion is imparted to the masseur by a small electric motor run by a battery, storage cell, lighting circuit or other source of electricity. It might be operated by a crank arrangement. A rubber tube leads from the bottom of the cylinder and ends in an ear piece to be inserted in the external auditory meatus of the patient. When the instrument is set in motion, the moving up and down of the piston within the cylinder causes a to-and-fro motion of the column of air confined in the tube and meatus, resulting in a to-and-fro motion of the membrana tympani and ossicula. And if we start on the exhaust stroke, with the plunger down, the first half of each revolution of the crank disk will draw the membrana tympani outward, and the second half of each revolution will release it and allow it to resume its former position. When operated in this way, by starting on the exhaust stroke, the result is not simply the *to-and-fro* motion of the membrana tympani, but is an alternate *withdrawal* and release. Considering the pathologic conditions present, to this may be attributed the very much better results from this instrument than are obtained from the Delstanche or Sieglé. However, be the true reason what it may, there can be no question as to the fact that the results *are* better. The ear piece is placed at an air-tight fit into the meatus, and the energy of action regulated by placing the crank pin in one or another of the holes in the crank disk. These holes vary in the distance of their location from the axis of the shaft; the farther the crank pin from the axis, the longer (therefore the more energetic) the stroke. The energy of action could be regulated by making a more or less tight fit of the ear piece in the meatus, but if this is resorted to the exhausting action is lost and this I think, is a disadvantage. A very mild action has given me the best results.

It has seemed most advantageous to apply the masseur every alternate day, sittings of thirty seconds to a minute duration, the masseur making from one hundred to one hundred and fifty revolutions to the minute. Knowing well how treacherous is enthusiasm I have refrained from publication until the instrument had been fairly and faithfully tried and the permanency of the results observed. As this has covered a period of two years and ten months, the present writing will seem not unduly hasty and the results entitled to be considered mature.

The word "benefited" is meant to include both relief of tinnitus and increase of hearing distance. In many cases the relief of both these symptoms was so marked and so immediate from a single sitting that the patient was greatly delighted. In some cases the results were but slight at first and increased at each subsequent sitting, while in other cases the benefit only appeared after a number of applications. Psychic effect was marked; patients were fascinated. But great care was taken to eliminate error from this in the records, which are of the cases of my own and those of Shirls Jackson.

Here is a resumé of my results:

Total number of ears treated	100
Number of ears treated that were better than c.-34	61
Number of the latter benefited	46
Number that could only hear watch on contact	39
Number of the latter benefited	19
Percentage of benefit in cases better than contact	.75
Percentage of benefit in cases not better than contact	.48
Percentage of benefit in all the cases	.65

Cases that could only hear on pressure, not on mere contact, were not isolated in the records.

Unlike Politzerization the application is not disagreeable to the patient and is readily applied to any one, regardless of the ability to swallow water at command. Children do not object to its repetition, and it has yielded good results in a few cases when promptly used in ear trouble following acute diseases.

Taking it all in all, my results have been much better since adding this instrument to my armamentarium.

EXPERIENCE OF AN AMERICAN PHYSICIAN IN MEXICO.

BY D. H. GALLOWAY, M.D.
CHICAGO.

A Case of Cancrum Oris.—One day happening to be in the dispensary conducted by Dr. Salmans, in Silao, I saw a child brought in which the Doctor had no sooner seen than he exclaimed: "Take it away! It will die!" Although I had never seen a case of cancrum oris, it was scarcely necessary for him to name the disease. The appearance and odor were something frightful, and death was then but a question of a few hours. When the Doctor had finished prescribing for the thirty or forty patients waiting, I asked him about the disease. He told me that in some two years' practice in that state, he had seen eight or ten cases of this dreadful malady; that he did nothing more than tell the people that the disease would be fatal, and dismissed them. He also

informed me that the Mexican doctors pursued the same course. This was not so much from a belief that the disease was incurable, as from the fact that the people among whom it occurred were too poor to pay for treatment, and too indifferent and ignorant to coöperate energetically or intelligently with the physician in its treatment. My duties in the medical service of the railroad company were sufficiently light to leave considerable time at my disposal. I requested the Doctor to turn the next case over to me, and if much deformity had not already been caused, I would attempt its cure. In most cases a large amount of tissue had been destroyed before the doctor was consulted. In such cases the chances that any treatment would stop the course of the disease are very slight; moreover, when such deformity had already been produced it would seem inhuman to try to save the child's life, for such a child would be a constant source of misery to itself and all about it as long as it lived; where the over-production of babies is so great that even the vigorous and healthy can not get enough to eat, the maimed will fare badly indeed.

September 6 I was again in the dispensary, when a woman brought in a child, a glance at whose face and a whiff of the horrible stench which preceded it, being sufficient to identify it as a case of cancrum oris. The Doctor told her to take the child out of the room, that it would die. Tears filled the mother's eyes as she left the room; this unusual exhibition of feeling reminded the Doctor of my offer, and he suggested that this would be a good case to begin on. I followed the woman outside and told her that if she would do exactly as I should direct, that I would undertake to cure the child. To this she readily agreed. The boy's name was Juan Sanchez, and he was 2½ years old. Like all of this class he was fearfully filthy, and I instructed the mother to take him home, give him a thorough scrubbing, from head to foot, and bring him to my office. This would not only make him a little less loathsome to handle, but would also be an earnest of her desire to have him live. In a short time she appeared at my office with the boy cleaner, probably, than he had ever been before or would ever be again. I placed two chairs facing each other, outside of the door, gave her one and I took the other. I had the mother hold the child on its back in her lap, in such manner that she could perfectly control its hands and feet. I then took its head between my knees, as in a vise, first covering my knees with a newspaper that I might be less likely to infection by pediculus capitis.

The disease had started around the upper central incisors. The upper lip was edematous, so that it projected beyond the point of the nose; the swelling extending to the cheeks. The blackening had not involved the lips, but extended for a considerable distance on both sides of the teeth. With a pair of dissecting forceps I removed the two teeth and scraped away the blackened portion. As I did so the connective tissue strung out like hair. Then I took an absorbent cotton wad on a toothpick, dipped it in strong nitric acid, cauterized the discolored surface, and in a few minutes washed it with water. I then dismissed her with instructions to come to the office every morning. The next morning, Sept. 7, I treated it with a saturated solution of copper sulphate in water. Blackened spots had reappeared, and these I picked out with forceps before using the wash. September 8 I removed the rudiments of the secondary set of teeth and a portion of the alveolar process, used strong nitric acid and followed with the copper solution. On the 9th I repeated the copper sulphate treatment. Pus was coming from the nose in great abundance. September 10 the child first began to show signs of improvement, and from this time on it slowly became better, under the use of the sulphate of copper every day. The edema gradually lessened and some effort toward repair of the damage was apparent. Nearly every morning I found one or more black spots, like pin heads, and this treatment was continued twenty-two days. For several days no blackening was to be seen and the wound was covered with healthy granulations.

I did not see the case for four days, and then found the cavity almost completely filled up, mucous membrane had formed over it all, and the only mark left by the disease was a cleft through the alveolar ridge, probably one-sixteenth of an inch wide, having something the appearance of a cleft palate. To me, the most remarkable thing about the case was the filling-in of the dental arch as perfectly, excepting the slight cleft, as it had been before the teeth had first made their appearance. I was absent from the city for a month, and on my return was unable to find the patient. I was anxious to know whether the cleft became smaller. I do not believe it would ever entirely close up. The boy would never have any upper central incisors.

ECTOPIA TESTICULI.

BY JNO. MADDEN, M.D.
MILWAUKEE, WIS.

The drawings herewith submitted are to illustrate a case of, and an operation for the excision of an ectopic testicle, made by the author on March 4 of the present year. The patient is a young man, 22 years old. Four or five years ago he first noticed a bulging at the left external abdominal ring which was accompanied by a dull pain extending to the loins and back. For one, two or three weeks the bulging would disappear, during which time he felt no discomfort.

An examination of the part while the tumor was present, disclosed only the presence of a mass of soft tissue in the inguinal canal, in the midst of which could be felt a cord which was taken to be the spermatic cord. The conclusion was therefore reached that the testicle was within the abdomen, its descent prevented by the smallness of the internal abdominal ring, and that the cord felt was the spermatic cord bent upon itself, the testicle presenting head foremost at the internal ring. An operation was advised, either to bring down the displaced organ and secure it within the scrotum, or, in case this was found impossible or impracticable, to remove it altogether.

On cutting down into the inguinal canal some difficulty was experienced in getting hold of the "cord," for the tumor was not then presenting. It was finally reached, however, and drawn down, when a small testicle appeared just without the internal ring, firmly held by a cord behind it. It was then discovered that the supposed cord in the inguinal canal was the epididymus, which, with one end attached to the testicle, trailed down the inguinal canal (see Fig. 1). The real cord of the testicle proved to be so short that it could not be pulled far out of the internal ring. It was therefore ligated with

double ligature and cut off close to the testicle. Fig. 2 is a drawing made from the object and very accurately represents the parts removed.

The wound was closed with the continued (etage) catgut suture (Fig. 3), embracing all of which were five stout interrupted silk sutures. (Fig. 4). Nothing disturbed the patient's convalescence.

It should be remarked that the right testicle of this subject is in the normal position, and seems to have reached a development compensating for the lack of development in the displaced organ.

In 1887 the author removed a very large testicle from the inguinal canal of a young man 19 years of age. This was also on the left side. A microscopic examination showed the organ to be the seat of very extensive sarcomatous degeneration. This patient

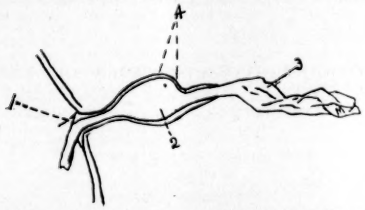


FIG. 1—1. Internal ring. 2. Testicle. 3. Epididymus. 4. Prolongation of abdominal peritoneum making "tunica vaginalis."

died of exhaustion about six weeks after the operation, and a post-mortem revealed enormous sarcomata of the supra-renal capsules.

In recent years the literature of this subject has become quite extensive; but still there is not enough material at hand to establish any well-defined rules of surgical procedure. Indeed, it is more probable that each case will continue to present a distinct problem, to be solved according to the nature of the

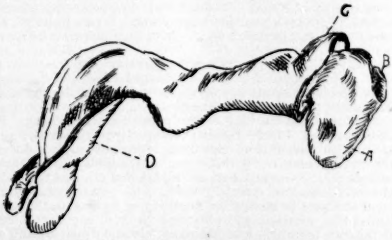


FIG. 2—A. Testicle. B. Cut surface where end was severed. C. Tunica slipped back. D. Epididymus (natural size).

surrounding conditions. If, as some operators seem to think, the atrophied ectopic testicle would develop after being brought into a normal position within the scrotum, a good deal of effort should be made to accomplish this object. The most favorable report I have been able to find, in which the object of the operation was to replace (or rather transplant) the ectopic organ in the scrotum is that of Jalaguier (*Le Bulletin Medical*, Paris, March 5, 1894). He reports fifteen cases in thirteen subjects. Herniæ co-existed in six cases. In two "the testicles became normal in size in from thirty to thirty-six months." In twelve others, at the end of three to fifteen months, the organs were "movable, sensitive, of normal consistency, and showed no disposition to retract." This author is of opinion that, in retained testicle, there exists a fibrous band connecting the testicle with the cribriform fascia and confining it. He advises operation in all cases where the subject is over 5 years of age, and in cases connected with troublesome herniæ.

Terillon (*Le Bulletin Medical*, March 8, 1894) reported six cases, congenital hernia in four, operated on by himself. In three cases "result was satisfactory." In one, the testicle retracted to its former site, and in two atrophy took place.

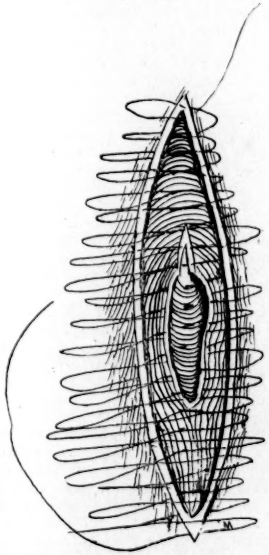


FIG. 3—Etage Suture for obliterating Inguinal Canal. A. Closing wound.

W. Von Schuttler, of Finland, (*Lyons Medical*, Lyons July 16, 1894) reported two cases operated on by him, one and a half years ago, in which the result was good. In two other cases (date of operation not given) he performed castration because the displaced testicle could not be fastened in the scrotum. In all of his cases hernia existed, and, in one of them, the hernia was strangulated.

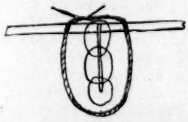


FIG. 4—Sectional view Etage and Interrupted Sutures.

Guibert of Reims (*Annales des Maladies des Organs Genitourinares*, March, 1894) reported a case of abdominal ectopia of both testicles in a boy of 18, upon whom he operated a year before, bringing one of the displaced organs into the scrotum. At the time the report was made, the subject was said to have "one good testicle in the normal position, normal erections and emissions in which there were some good sper-

matozoa, while others were deformed and broken." As the condition of the subject in respect to erections and the nature of the semen before the operation is not given, this evidence of improvement is not very valuable.

Felizet (*Le Bulletin Medical*, March 12, 1894) makes the observation that "when the organ is movable, it is generally normal in form, volume, and consistency and will descend if enlargement of the inguinal canal takes place; but when fixed is usually altered in size and texture and is painful." My own recent case contradicts this statement; for this testicle was freely movable but very much atrophied and painful.

At a meeting of the London Medical Society (*Lancet*, April 16, 1894) Mr. C. B. Keetley reported two cases upon which he operated to bring the testicle within the scrotum. In one of these cases he was unable to bring the organ down far enough to fasten it in the scrotum. He had therefore made an incision in the thigh, opposite a corresponding incision in the upper part of the scrotum where the testicle was fastened and covered by uniting the scrotum with the thigh. In this position it was allowed to remain five months. It was then brought down and fastened in the scrotum where it remained. A discussion arose as to whether an atrophied ectopic testicle would grow when artificially transplanted in the normal position. Mr. Keetley replied that the organ had "already grown."

In 1890 (*Lancet* February 1), Mr. Watson Cheyne reported two cases in the same subject. In this case the testicles were lying in the inguinal canal, "but could be made to come down through the external ring." The right side was operated on a year before by suturing the testicle to the bottom of the scrotum and closing the external abdominal ring, passing some of the sutures, used to close the ring, through the cord and skin. The result was fairly satisfactory. Ten months after, the left side was operated on. In this case, the surgeon passed a silk ligature through the cord above the testicle, brought it through the bottom of the scrotum, and tied it to a bar of wire projecting from a frame made fast to the perineum. The stitch was removed on the eleventh day and the testicle remained in the scrotum.

Of the American cases we find one reported by E. A. Balloch, of Washington, D. C., *Medical Record*, August 6, 1892). In this patient who was 47 years old, one organ was removed in 1889 and the other in 1891 for "painful orchitis."

Dr. O. L. Bartlett of Rockland, Me., operated successfully in 1892 on a subject in which the left testicle was invisible and the right in the inguinal canal. The right gland was put in its proper locality and "sexual power was perfect." Hamilton Williams, M.D., of Brooklyn, reported (*Medical Record*, Dec. 7, 1889) a case of sexual hypochondria in a subject, in which there was an absence of the right testis, while the left was in the inguinal canal. An operation upon the left was attended by success in all respects. Dr. Gerster, of New York, reported a case in 1886, in which ectopic testicle was a complication of hernia; castration was performed and the testicle was found to be sarcomatous.

Two considerations must influence our judgment in deciding what is best to be done in dealing with this class of cases. Investigation has shown (see article of H. Royes Bell in "Int. Ency. of Surgery") that the ectopic testicle is not productive of virile spermatozoa. To this rule there seems to be but few exceptions. The second consideration is the liability of the retained organ to undergo destructive inflammation or malignant change. Of the thirty-six cases mentioned in this paper, two were removed because of long standing orchitis, and two were the seat of sarcomatous degeneration. Thus 11 per cent. of the ectopic organs were the seat of destructive disease. It would seem, then, that in subjects possessing one healthy gland normally situated, the atrophied and useless testicle should be promptly sacrificed.

In case, however, both testicles are retained, the justice of adopting measures for their preservation is apparent. Shonld it finally be demonstrated that an ectopic aspermatozoic testis may become virile when put in its normal place, there will exist sufficient reason for making every attempt to do so.

63 Sentinel Building.

ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854–1894.

BY JOSEPH JONES, M.D., LL.D.
NEW ORLEANS, LA.

(*Continued from page 669.*)

CHAPTER X.

Case 2.—Yellow fever, black vomit, death. John Sullivan entered Charity Hospital Oct. 8, 1873, about fourth day of disease, great congestion of capillaries of face, neck and extremities, jaundice, hiccough, nausea, pain in head especially in frontal region. Pulse 82, respiration 28, temperature of axilla 98.2. October 9, 8 A.M., pulse 72, respiration 28, temperature 97.1; black vomit. The liquid ejected in abundance is of low specific gravity and strong acid reaction and contains numerous dark specks and flakes resemblihg coffee grounds. Hands feel cold. Great congestion of peripheral capillaries. Jaundice; conjunctiva of eyes congested and yellow; tongue red at tip and edges. Gums very red with some oozing of blood. Patient says that he has pain everywhere. Urinary excretion suppressed. 8 P.M., pulse 80, respiration 30, temperature 99.2. Spits up black vomit all over the bed.

October 10, 8 A.M., pulseless, respiration 40; temperature 92.2. Suppression of urine. Patient restless and delirious. Spits up black vomit which resembles black liquid blood. Died at 10 A.M. Temperature of axilla at moment of death 99.2. There was no rise of temperature after death. Examination of black vomit; clear straw-colored liquid, holding in suspension dark coffee-ground-looking flocculi and flakes resembling coffee grounds, which settled to the bottom of the vessel, when the liquid was allowed to remain at rest. Reaction strongly acid. The reaction was found upon analysis to be due to acetic and hydrochloric acids. Under the microscope, I observed broken capillaries, cells of mucous membrane of stomach, blood corpuscles and angular masses of hematin and cells of the gastric mucous membrane stained with hematin. Numerous bacteria and rotating animalculæ, about one ten-thousandth of an inch in diameter rapidly appeared and increased in numbers. Specific gravity of black vomit 1004. When filtered, the colored blood corpuscles, masses of hematin, and mucous cells remained on the filter, and a clear, light, straw-colored liquid passed through. The filtered liquid gave a heavy precipitate with nitrate of silver, and a mere turbidness with the chlorid of barium. Nitric acid produced no precipitate in the filtered liquid. The graded solution of the nitrate of the per- (red) oxid of mercury used in the analysis of the urine after the method of Liebig produced a heavy white precipitate from the presence of urea. The usual process for urea in the blood and organic liquids revealed the presence of urea. This specimen of black vomit was collected October 9 at 10 A.M. Upon carefully tasting the black vomit I found it to be decidedly bitter like bile, although I was unable by chemic tests to detect either the coloring matter or the acids of bile. The black vomit be-

came thicker toward the close of life, and more nearly resembled dark grumous blood. During the last thirty-six hours of life, this patient emitted a foul stench, and presented a horrible appearance, with the dark filthy stains of black vomit on the bed-clothes, and even the sides of the walls; streams of black vomit running from the corners of his mouth, and immense swarms of flies hovering over and around his bed.

Post-mortem examination: results similar to those recorded in many other cases of yellow fever already presented in detail.

Case 3.—Yellow fever, black vomit, death. Daniel McMonagale, age 18, native of Ohio, left his native State two years previous to the present attack; resided in Memphis and Vicksburg, and has been in New Orleans two weeks. Has had chills and fever at various times during the past two months. Entered Charity Hospital evening of Oct. 11, 1873. I saw this patient for the first time on the morning of October 12, 8 A.M. At this time, although not actually delirious, is unable to give a full and accurate account of his present attack. Surface of body covered with petechiæ. Gums red. Tongue very red at tip and edges. Body of tongue coated with light yellow fur. Tenderness on pressure of epigastrium. Conjunctiva of eyes injected. Center of tongue cracked, with dark blood oozing from the denuded surface. Conjunctiva of eyes and surface of body present a distinct yellow color. Nausea; pulse 110, respiration 22, temperature of axilla 104.6. 8 P.M., pulse 113, respiration 26, temperature of axilla 105.5. The pulse has increased two beats, the respiration four, and the temperature of the axilla, 0.9 F. Has ejected the matters contained in the stomach, with some flakes and streaks of dark blood. A small amount of urine was collected during the day which contained bile, albumin and urinary casts. The urinary secretion is scant and evidently diminished in amount. Injection of ice-cold water into the rectum was ordered; ice bag to epigastrium, and water charged with carbonic acid, iced milk and fragments of ice internally.

October 13, 8 A.M., pulse 110, respiration 29, temperature 104.5. Dull and stupid. Has thrown up black vomit in considerable quantity. The injection of the ice-cold water appeared to be beneficial and to increase the flow of urine. 8 P.M., pulse 112, respiration 34, temperature of axilla 104.7. Continue ice-cold injections to rectum and treatment. October 14, 8 A.M., pulse 116, respiration 35, temperature 103.3. Delirious; jaundice; great capillary congestion; urine scant. During the night the patient discharged black vomit over his bed and against the sides of the wall. At the present time, spits up black vomit against the wall, like tobacco juice. The black vomit appears to come up without any effort. The nurse found it almost impossible to collect the black vomit for microscopic and chemic analysis. No urine has been collected since the first day, although the nurse states that the patient has passed it in bed. The injection of the rectum with cold water appeared to produce beneficial effects upon the congested and embarrassed kidneys. 8 P.M., pulse 130, respiration 38, temperature of axilla 103.3. Great capillary congestion, conjunctiva and surface of a yellow mottled appearance. Petechiæ have continued upon the surface. Notwithstanding the increase in the rapidity of the pulse and respiration, the temperature has fallen 2.2. F. since October 12. Died October 15 at 6 A.M. This patient was delirious for thirty-six hours before death.

Autopsy three hours after death: exterior of body of a golden jaundiced color; lower portions of a deep purplish mottled appearance. Black vomit issuing from corners of mouth and streaming down the neck. Limbs, trunk and face full and plump. Blood issuing from both ears. Thorax: lower portions of lungs congested, otherwise normal. Heart: muscular fibers presented a yellow appearance and were much softer than in healthy hearts, and in the heart of malarial fever. Under a magnifying power of 450 diameters the transverse striæ of the muscular fibers were found to be indistinct, and to be filled with granular matter and small oil globules. The granular matter and small oil globules appeared to be deposited around as well as within the muscular fibrillæ. The blood from the cavities of the heart was carefully collected; it was still warm, and fluid. Upon standing a few minutes in the glass vessel it coagulated. Under the microscope the vast majority of the colored blood corpuscles presented a normal appearance; a few presented a crenated stellate appearance. The blood corpuscles ran together, forming rouleaux as in the blood of inflammation. The fibrin was diminished in amount—the clot was voluminous and soft, but the fibrin was in larger amount, and the clot was more firm than in those cases in which there had been complete suppression of the urine. Upon careful examination, with a high power, 1-18 of inch, I discovered no bacteria, animalculæ nor fungi in the blood. The blood, however, contained numerous oil globules. Reaction of blood neutral or very slightly alkalin. Upon standing for a few hours, golden-colored serum was pressed out of the clot, which also contained colored corpuscles. At the end of three days the clot still remained undissolved. The serum was less deeply colored than in those cases in which there was complete suppression of urine. The liver upon the exterior presented a yellowish mottled appearance. This appearance was also observed when sections of the organ were made, and appeared to be due to the congestion of the hepatic capillaries within each lobule. The periphery of each lobule, including the portal system of capillaries, was of the usual yellow color, and the oil appeared to be accumulated in largest amount in this portion of the lobuli. Some portions of the liver were without any marked capillary congestion of the hepatic venous capillaries, and presented a uniform yellow appearance. This liver in a general view, presented more nearly the Spanish brown color of the liver of health than in many cases of yellow fever; and this depth of color was due to two causes: 1, to the great congestion of the central capillary (hepatic capillaries) of each lobulus; and 2, to the presence of dark granular masses of hematin, scattered chiefly through the portal system of capillaries, and which had evidently been deposited during the preceding attack of malarial fever. The blood was much brighter in color in the capillaries of the liver than in malarial fever. The blood from the cavities of the heart and from the blood vessels of the liver also changed to a bright arterial hue. The voluntary muscles, as those of the thorax, presented a brilliant hue when exposed to the atmosphere. The muscular fibers of the heart on the contrary presented a distinct yellow color like that of the liver. The gall bladder was entirely empty, kidneys of a yellowish color and congested. Sections of the kidneys with Valentin's knife were carefully examined with magnifying powers ranging from 1-2 to 1-18 inch objective. The Malpighian corpuscles and tubuli uriniferi contained detached cells, oil globules and yellow granular matter. These matters have accumulated to a much less extent, however, than in the kidneys of those cases of yellow fever in which there had been complete suppression of urine. Urinary bladder distended with golden orange-colored urine. Specific gravity 1012; reaction acid; urine contained albumin in considerable amount with detached cells and casts; no grape sugar. Alimentary canal, mucous membrane of stomach congested, with denuded patches, in which the ends of broken vessels filled with dark liquid blood were plainly seen, especially when low magnifying powers were employed. The stomach contained eight fluid ounces of thick, grumous, almost black liquid blood or black vomit. Under the microscope, the contents of the stomach

contained numerous blood corpuscles variously altered in their forms, masses of hematin, mucus corpuscles, broken capillaries, detached epithelium from mucous membrane and granular casts of the glands of the mucous membrane of the stomach. No animalculæ or vegetable organisms were observed in the black vomit. Some oil globules were observed, which were referred to the milk which the patient had taken before death. The black vomit emitted a foul putrid odor as of decomposed blood. Reaction of black vomit slightly acid. Spleen, enlarged, softened and exhibited the marks of preceding malarial fever.

The foregoing investigations occupied my time fully for twelve hours without intermission. I determined to institute a series of experiments with black vomit upon living animals, and at 6 P.M., Oct. 15, 1873, I instituted the following experiments:

EXPERIMENTS UPON LIVING ANIMALS WITH THE BLOOD FROM THE HEART, AND THE BLACK VOMIT FROM THE STOMACH, OF YELLOW FEVER CASES.

Experiment 305.—With a small "subcutaneous" syringe, I injected beneath the skin of a healthy puppy, about thirty drops of blood taken from the heart of a yellow fever patient three hours after death. No ill effects were observed.

Experiment 306.—In like manner I injected beneath the skin of an active guinea pig about the same quantity of blood from the yellow fever heart. The next day, Oct. 16, 1873, the guinea pig appeared lively and ate its food. October 17, the animal appears sluggish and refuses food. October 18 animal feeble; moves with difficulty, and is evidently ill from the effects of the injection. October 19, 5 A.M., I found the guinea pig dead, cold and stiff.

Post-mortem examination.—Body emits a disagreeable odor; cellular tissue of skin and surface discolored and greatly congested around the point of the injection of the yellow fever blood. Cellular tissue and skin softened in those portions around the area of injection. Under the microscope the fluid from these portions of the cellular tissue was found to contain bacteria and revolving animalculæ. Cavities of the heart distended with dark, almost black, loosely coagulated blood. Blood changed rapidly to the arterial hue upon exposure to the atmosphere. Under the microscope the blood corpuscles presented no peculiar alteration. Liver congested. The microscope revealed no accumulation of oil in the textures of the liver. Liver cells distinct but pale. No bacteria, or animal or vegetable organisms were observed in the blood of the heart, or in the blood and structures of the liver.

Experiment 307.—Into the subcutaneous tissue of a large, healthy and active male guinea pig, I injected about thirty drops of black vomit, taken from the stomach of the yellow fever patient three hours after death. The black vomit thus carefully injected into the cellular tissue caused the death of this animal in six hours.

Post-mortem examination.—Diffused redness, and great capillary congestion of cellular tissue beneath the skin. Congestion greatest in the immediate vicinity of the injection. Body emits a foul putrid odor. Immediately around the point where the black vomit had been injected dark blood had been effused, and the textures presented precisely the appearance of those wounded and poisoned by the fangs of the rattlesnake or copperhead. The cavities of the heart were distended with dark loosely coagulated blood. No animalculæ, bacteria or fungi, or algæ discovered in the blood. Decomposition rapid; and although the animal was examined almost immediately after after death, the odor was disagreeable and resembled that of the black vomit.

Experiment 308.—I injected into the subcutaneous tissue of a large healthy guinea pig, about thirty drops of black vomit which I had preserved from a case of yellow fever, ejected shortly before death on Oct. 9, 1873, six days before the present experiment. Death caused by the black vomit in six hours.

Post-mortem examination.—Results similar in all respects to those recorded in the preceding experiment; intense congestion of cellular tissue around locality of injection of black vomit; no animalculæ or vegetable organisms in blood; putrefaction rapid and marked by foul odor.

Experiment 309.—I injected into the subcutaneous tissue of a guinea pig about thirty drops of putrid blood, which I had extracted from the cavities of the heart of a subject who had died six days before, on October 9, in a "*congestive*" malarial chill. Death caused by the putrid malarial blood in eight hours.

Post-mortem changes similar to those recorded in experiments third and fourth.

The preceding experiments are of importance in establishing the fact that black vomit, taken from the stomach immediately after death, or ejected during life in yellow fever, will, when injected into the subcutaneous tissue, produce as deadly and as rapidly fatal results as putrid blood.

We deduce the following practical conclusions:

1. Black vomit, when absorbed into the circulatory system, may act as a deadly septic poison.

2. As the capillaries of the stomach in yellow fever are often ruptured, and the epithelium of the mucous membrane denuded, it is possible that in some cases the absorption of black vomit, especially after it has undergone putrefactive changes in the stomach, may be an important cause of the fatal issue.

3. If remedies could be used which would prevent putrefactive changes in the black vomit and render it comparatively inert, a certain proportion of cases might be rescued, after the appearance of black vomit.

The preceding experiments and reasoning led me to employ the sulpho-carbolate of sodium, in doses of 20 grains, every four or six hours in the treatment of yellow fever. I have used the sulpho-carbolate of sodium in about forty cases of yellow fever, with satisfactory results. I find that it is readily borne by the stomach at all stages of the disease; that so far from exciting nausea or vomiting, it often modifies and arrests these distressing symptoms. It appeared in some cases to arrest the decomposition of the black vomit. One case accompanied by a temperature of 107.1 degrees, and attended with black vomit recovered under its use, combined with ice water injections into the rectum. At some future time we hope to present statements of these cases.

Davaine claims to have made the following discoveries: after injecting beneath the skin of an animal's neck a single drop of putrid blood, the surrounding tissue became extensively infiltrated, and death soon followed with symptoms of septicemia. The blood of this animal was then employed to inject other animals in a similar way, and was found to be more poisonous than the original putrid blood. A

third and fourth animal was then injected, each with the blood of the preceding one, and in this way twenty-four in all were experimented on. The results seemed to show that the toxic power of the septic material increases by dilution.

Stricker, in a series of experiments undertaken to test these statements, inoculated 25 animals with healthy, 23 with putrid, and 73 with blood diluted by transmission. Of the first series, 4 died. Of the second series 11 died. In experiments with diluted blood, when it had passed through 13 different animals, 53 of the 73 died. From this it appears that even the very small amount of 1-1250 of a cubic centimeter of poisonous material could cause death when injected hypodermically. Davaine's statement that organisms form in the blood and increase by every transmission, was not sustained by investigation. Stricker found numerous colorless bodies in the blood of these animals, but he did not regard them as organisms, but rather as protoplasmic bodies. The following facts he regards as ascertained:

1. That transmission greatly increases the injurious and fatal action of the putrid matter.

2. That the original disease was infectious, but that through inoculation it became contagious.

3. That though it be not proved yet it is probable that the special poison is a living contagion (*contagium animatum*) for such rapid proliferation is only possible in organized material.

4. That the poison is diffusible and is not destroyed by boiling (*Allg. Wein Med, Zietung*, 20, 1873; *New York Medical Record*, July 1, 1873, p. 311).

If it be true that the poison of yellow fever may be generated in human beings under certain conditions of the constitution, and more especially of the chemical and physical constitution of the blood and of the nervous and muscular structures, when subjected to the combined influences of heat and crowding in an impure atmosphere; if it be still further true that decomposition, both before and after death, is more rapid than in any other form of disease, and if this decomposition forms the most favorable condition for the rapid multiplication of bacteria and fungi, and other simple organisms; it is reasonable, in the light of the preceding experiments of Davaine and Stricker, to suppose that these organisms may become *carriers* of the poison, and may constitute an important medium of its dissemination from the original foci.

Magendie has shown by actual experiments on living animals that an excess of alkalinity in the blood, interferes not only with the freedom of the passage of this liquid through the capillary vessels and diminishes the property of coagulation, but also, when thus modified, the blood tends to penetrate the walls of the capillaries by imbibition, and to produce those disorders in the mucous membrane, which have long been known under the name of inflammation.

Magendie by injecting carbonate of soda into the veins of animals, produced edema of the lungs, with its pathognomonic signs at the outset, and cadaveric lesions when it causes death. Thus proving that when the blood becomes surcharged with an alkalin principle its serous matter increases in quantity, escapes from its vessels among the lobular ramifications of the lungs, distends and bursts them, and carrying with it the coagulable part, in a semi-liquid state, collects in irregular masses, which appear to be formed in large measure of fibrinate of soda and potassa.

On comparing the disorders caused by spontaneous excess of alkalinity in the blood, with those produced by injecting carbonate of soda into the veins, or by a frequent repetition of blood-letting, Magendie found the same symptoms and similar results.

If any substance possessing the property of combining chemically and of forming salts with the fibrin, such as fibrinate of soda, potassa, or ammonia, be injected into the veins of a living animal, the fibrin will lose its coagulability, and this change affects the blood generally, and although it may contain the usual proportion of fibrin, it becomes unfit for circulation, and stagnates in the capillaries and especially in the pulmonary vessels, and local lesions, as apoplexy, hemorrhage, or hepatization follow.

Magendie has in like manner, tested the effects of defibrinization upon the process of inflammation during the reparation of wounds. He selected a dog from whom he had successively removed several portions of fibrin. A longitudinal incision was made through the skin, and some depth of muscle in the anterior and middle part of the neck. The blood that escaped from the divided vessels appeared more liquid than usual; it did not coagulate on the blade of the bistoury. The lips of the wound were united by the twisted suture, and the animal left to himself. The animal survived the operation a few days only. An examination of the wound after death revealed the absence of any real adhesion by coagulable lymph, and the divided tissues were discolored, dry and hardly at all swollen.

The older writers were acquainted with the fact that alkalin salts prevented the coagulation of the blood, and John Huxham in his "Essay of Fevers," uses this fact to explain the changes of the blood in scurvy and putrid petechial fevers:

"It is well known that volatile alkali salts mixed with the blood, when just drawn, or rather after it runs from the vein, keep it from coagulating and hinder it from separating into crasamentum and serum, as usual. The experiment is easy, and every one will find it true on trial. This very adequately resembles the blood drawn from the bleeding scorbutics, and also from most persons that labor under putrid petechial fevers, when the blood is drawn very early in the disease.

"All humors of the body, actually putrefied, become a strong alkali, and putrid blood loses its consistency, and soon after its color, running into a yellowish dark-colored sanies. The blood drawn in some greatly putrid petechial fevers, hath had this appearance, and been observed actually to stink as soon as drawn, as well as the urine, as soon as made; so far was the putrefaction advanced, while even life was still subsiding. The surprisingly great and speedy corruption of bodies dying of pestilential fevers with spots, shows this likewise; I have known such a corpse air as much, as they call it, in seven or eight hours, as dead bodies commonly do in seven or eight days, and to leak out a most putrid sanies, from all the outlets of the body; which by-the-by, is a reason why persons dying of such fevers should be buried very soon."—"An Essay on Fevers," etc., by John Huxham, M.D., 1757, pp. 50, 51.

Andral has shown that in the diminution of the fibrin, relatively to the globules, we must recognize the grand condition of the blood favorable to the production of hemorrhages; and in his investigations he found the relations of these two factors so constant that he found it impossible not to regard the one as the cause of the other. In scurvy the proportion of globules is natural, or varies within narrow limits, while the quantity of the fibrin is diminished, and its coagulative quality is at the same time altered; and this condition is most favorable to the production of repeated and profuse hemorrhages.

The tendency of the formation of petechial and

livid spots, during the progress of malignant fevers, in the Middle Ages, is referable chiefly to the scorbutic condition of most patients, at those times, when salt meat constituted the chief nutriment during a large portion of the year, and fresh vegetables were almost unknown. In this connection it should be remembered, that authors have declared that they have found an excess of alkalin matters in the imperfectly coagulated blood of persons who have died of low fevers or scurvy, attended with livid petechiæ and spots. An analogous result was announced by M. Frémy and Andral.

Without doubt the supposition is correct that the peculiar hygienic condition of the people of Europe, before the eighteenth century, caused them to be frequently attacked with diseases, one of whose principal elements, if not their starting point, was a state of dissolution of the blood. The dissolved and incoagulable blood, petechial and passive hemorrhages, so constantly described by authors, in their histories of epidemic fevers, in the Middle Ages, are most philosophically referred in a measure at least, to the scorbutic state of the blood of the patients, and to the bad ventilation and filthy habits of the times. In the epidemics which prevailed in Europe during the Middle Ages, it was common to observe gangrene, hemorrhage from various parts, extensive ecchymosis, or thousands of petechiæ covering the skin, while the symptoms of typhoid fever, and of the various contagious eruptive fevers, developed themselves with a high degree of intensity, and the greatest rapidity. These affections were the external manifestion of an internal condition of the blood.

Erasmus, the philosopher, who flourished toward the close of the sixteenth century, wrote that in his day, the inhabitants of London, were every year, from spring to harvest, attacked by a malignant fever, which committed the greatest ravages in that city, and especially among the poorer classes. "The supply of water," Erasmus says; "fails the inhabitants; they have to seek it at a great distance from the city; the river water is carried on their backs, and is so dear that the poor can not procure enough of it to wash themselves, and keep their houses clean. These houses are of wood, and very cold in winter, which makes it necessary to fill the rooms with straw. But as this can not be often renewed, it becomes spoiled and very injurious."

Grant who practiced medicine, and wrote toward the close of the last century, suggested the inquiry, whether the peculiar hygienic condition of the people of Europe before the eighteenth century, must not have caused them to be frequently attacked with diseases, one of whose principal elements, if not their starting point, was a state of dissolution of the blood. It is certainly remarkable that the observers of preceding ages, constantly speak of dissolved and incoagulable blood in their histories of epidemics.

Huxham in his "Essay on Fevers," has given a large number of observations, illustrating the great tendency to petechiæ and passive hemorrhages in the fevers of those times.

Andral in treating of the changes of the blood in scurvy, records the disappearance of this disease, and of the great febrile epidemics of the Middle Ages, and says:

"We must therefore admit, that in consequence of the change in the nature of the influences which necessarily act upon men, the blood which receives before the solids the impression of the greater part of these influences, must present changes in its constitution proportioned to those undergone by the agents which operate upon it. It would appear then, that there must have been a time, when a very peculiar constitution of the blood engendered maladies, which in certain respects, may have differed from those now observed, and may not have required the same treatment. And thus it is that at different periods of the existence of our race, and the diversity of influences to which it may be subjected, diseases of very different types may arise, and undergo changes in their essential nature, which are revealed to us by the specific character of their symptoms."

The changes of the blood in certain cases of yellow fever, may have been the *result* and not the *cause* of the aberrated nervous actions. If this be true, the petechiæ and spots, observed in a certain proportion of cases, should not be regarded as true cutaneous affections characteristic of the exanthemata.

It has been said that extreme agitation of the nervous system may deprive the blood of its power to coagulate. According to several observers, a similar effect may be produced by a strong moral emotion, a concussion of the brain, the destruction of a certain portion of the spinal marrow or a violent blow upon the pit of the stomach, affecting the nervous plexus of that region. If facts of this class were appropriately verified, they would doubtless be of the highest importance; for they would show that the nervous system exerts a powerful influence over the constitution of the blood, and that consequently a lesion of innervation may deteriorate the blood, just as an alteration of the blood may modify the nervous action. Professor Dupuy announced that by dividing the pneumogastric nerves in horses, the blood of these animals lost its property of coagulating; Dr. Mayer, on the other hand, having tied the pneumogastric nerves in living animals, found that uniformly the blood had coagulated throughout the entire pulmonary circulation. These facts, as well as those relating to the effects of lightning, excessive heat and excessive exercise in warm weather, require additional proof. It it be true that the changes of the blood may be in accordance with the portion of the nervous system affected, as in section of the pneumogastric and sympathetic, it may be inferred that the changes of the blood in yellow fever may vary within certain limits with the portion of the nervous system chiefly involved.

EXPERIMENTS ON THE EFFECTS OF PUTRID ANIMAL MATTERS.

One of the most remarkable phenomenon presented by animals into whose veins Magendie more than thirty years ago, injected putrid substances was what is termed inflammation of the intestines; that is to say, exhalation of a matter having the color of washings of flesh.

Various observers have pointed out the effects of certain animal substances in raising the temperature when injected into the circulation. Billroth and Hufschmidt, found that in all the cases in which putrid solutions or recent pus were injected into the subcutaneous tissue or into the blood, there was a rise of temperature in the rectum, which was considerable even within two hours after the injection, and reached its maximum in from two to twenty-eight hours; that the minimum exceeded the normal temperature by 1.6 C. (2.88 F.,) and the maximum, 2.2 C., (3.96 F.,) and that if the injection was only done once, a rapid defervescence generally

set in, shortly after the acme had been reached; while on the other hand, after repeated injections death constantly occurred, generally with very high temperatures.

C. Weber has determined by similar experiments, the heat producing and inflammatory effects of pus, of fluids from inflamed tissues, and of pyemic and septicemic blood, and even of the blood of an animal merely suffering from simple inflammatory fever, when injected subcutaneously or into serous cavities.

Frese by numerous experiments, showed that the blood of animals suffering from any kind of fever, induced a rise of temperature, when introduced into the circulation of a healthy animal of the same species.

(*To be continued.*)

PRE-COLUMBIAN LEPROSY.

BY ALBERT S. ASHMEAD, M.D.
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NEW YORK.

(*Continued from page 672.*)

Professor Putnam, of Peabody Museum, Cambridge, Mass., with whom I discussed this subject at some length, is not of opinion that a horror of leprosy in ancient Peru would stand in the way of the burial of leprous representations with their dead. "For," says he, "whatever custom has been transmitted from generations to generations is, in Peru, always kept up, whatever might have been the events and circumstances which might deprive the custom of all meaning. Even if they do not understand the meaning of a rite, they will perform it because their fathers did." Mummies are now found in that country, tied up in sacks, the false head sticking out, tied up separately, just as they were in the distant past. The custom was, and is still, to bury with the dead such objects as might indicate his condition of life, or any peculiarity belonging to him as an individual, even some circumstance peculiar to the time in which he lived. There is a mummy in the Peabody Museum which was buried with a decree of the sovereign Pontiff which was published at the time when the man was living, and which, so far as we can see, had nothing to do with him as an individual.

Professor Putnam tells of his discovery of a corpse in one of the many stone graves scattered over Tennessee, Arkansas and Missouri, which presented a curvature of the spine, and buried with the same he found a piece of pottery representing that identical curvature. Therefore we may expect, even if only one such is found, that some relation existed between deformities of deceased persons and the objects which were buried with them. In Professor Putnam's museum, he informs me there is a piece of *huacos* pottery, showing the side of the nose and the side of the upper lip and part of the cheek eaten away. The pathologists of Harvard University, who examined this specimen, are of the opinion that these deformities might represent lupus. The same pathologists are not able to affirm that the so-called evidences of syphilis, in ancient bones of America, which are so plentiful in the Peabody Museum, are of any value to prove the disease. They question whether syphilitic disease could produce effects which could not be mistaken for the effects of some other diseases, as tuberculosis, rheumatism, etc. Professor Putnam personally has gone over the same ground as Professor Joseph Jones. The latter thought he had found unmistakable evidences of pre-Columbian syphilis. Putnam found no evidences of the Tennessee mounds, which he could swear to as being certainly syphilitic.

I called Professor Putnam's attention to a Peruvian skull in the American Museum, of the Bandelier collection, which was being classified. It was an Inca skull, and showed evidence of disease at the junction of the parietal and frontal bones in the supratemporal region; a diseased spot of an inch and a half in diameter. The bone was cancellated and eburnated, with deep corrugations as if eaten by disease; the tissue was almost eaten through. But what was more peculiar was that a knife mark so fine that it could only be seen clearly with a glass, passed around the diseased spot. When held to the light and examined from the inside, through the foramen magnum, this part of the skull appeared almost entirely eaten through. No evidence of disease except by this transmission of light could be observed on the internal surface of the skull. Evidently an operation had been made on a tumor or ulcer of the scalp, and the instrument had left its mark on the bone beneath the periosteum. This looks very much like syphilis.

Professor Putnam showed me a trephined Inca skull which evidently had not been fractured. It was evident in this specimen that a round flap of scalp had been removed before the operation. This evidence consisted in a whitening and a smoother appearance of the bone. Putnam thinks that if this operation was really performed without any fracture to warrant it, it may have been done to release some evil spirit, which their superstition led them to suspect was in the skull. My own opinion is that we have here an exostosis, and one that might well have been syphilitic.

According to Professor Putnam, there are numerous evidences of intercourse between America and Asia in very ancient times. "There were," says he, "probably two routes from India to this country; one through the Malay archipelago and thence from island to island, and slowly through numerous generations, up to the Aleutian Islands, where Behring's Strait alone separated the slow invasion from the great continent." Putnam supposes that when this slow emigration had reached this extreme point, the commercial population of America went to meet them. I may here say that it would be just as probable that the people who could creep from island to island for centuries might have themselves made that last step, and crossing the strait, entered in relation with the population of the continent. The other route is across the South Pacific Islands.

"If leprosy inoculated America before Columbus, it must have occurred," says Professor Putnam, "very early in the history of this continent. It must have long antedated the earliest period at which it could have inoculated Japan, 660 B. C. For the disease must have come with that East Indian current, if there was such current, when it touched South America; and this was certainly long before 660 B. C."

Dr. Augustus Le Plongeon, whose explorations in Yucatan have already been referred to, has kindly given me the following facts about his experiences in Peru and Yucatan, as far as they relate to my subject:

"First as regards Peru. You may not be aware that I have practiced medicine in Lima from 1862 to

NOTE.—If leprosy had come to America from East Asia by this route, we should have some indications of it, by races left in the South Pacific Islands. But there was never leprosy in those islands.

1870, studying meanwhile ancient Inca civilization. My collection of ceramics, dug up under my supervision from the *huacos*, was one of the most complete in Lima when I left the city. My practice was very extensive among all classes of society and I must say that, at this moment, I do not recall having seen cases of leprosy among the Indians. The cases I recollect having seen were among the negroes particularly and the white descendants of Europeans,[5] that is the Creoles. Of course syphilis was, and is still common among the Indians. Anciently, throughout America, it was for some reason unknown to me, regarded as a "sacred disease." I have not used the Quichua language for so many years that I have wellnigh forgotten it. I do not remember if it contained a word for leprosy. . . . . Professor Bandelier, who is now delving in the tombs of the ancient Peruvians has sent some of his finds to the Museum of Natural History in Central Park. Among other things a curious skull, with a deep hollow, caused I should judge by syphilis, and a lot of curious jars, etc. . . . I have never heard that those affected with leprosy in Peru were kept apart from other people. I suppose that the cases were too few to attract the attention of the authorities. As to Yucatan, where I have resided during eleven years, mostly among the aborigines, I do not recollect having met with a single leprous case among them. There were a few cases of syphilis, where they have had contact with the whites. To-day the Indian population of Yucatan seems to be a particularly healthy vigorous race. I have seen cases of leprosy, but they were confined to the Creoles. Two of the principal families of Merida, the capital, are known to be leprous. Juan Peon Contreras, a member of said families who generally intermarry among themselves, although very wealthy, was at one time director of the Yucatan Museum, and a disgusting object to look at, literally falling to pieces. Still he was commingling with other people without hindrance. Another such case I saw at the Island of Cozumel. I repeat, the cases are rare. I have no doubt that the disease was known in the country ages before the advent of the Spaniards. The Maya word for leprosy is *naycan*, from the verb *nay*, to corrode, to eat up. This is not a name of modern invention; it is found in the dictionaries and vocabularies of the language made by the Franciscans in the sixteenth century. I have a small medical book written in Maya language by a native, one hundred years ago, but I do not find in it any mention of leprosy.

"My study of the mural paintings in the funeral chamber of Prince Coh, at Chichen, also of the basreliefs that adorn the walls of the public monuments in that ancient city, proves to me that in remote ages the inhabitants of Yucatan, in fact of all Central America, had as close communication with those of all other civilized countries as they have to-day. They had close relations with India and Indo-China, where they introduced their civilization, as I show in my book 'Queen Moo and the Egyptian Sphinx,' that will be given publicity in two or three months. I discovered portraits of Carthagenians sculptured on the walls; representations of negroes from Africa, Mongolians from East Asia, Burmese from Indo-China, etc., painted and carved on pillars and walls. In fact the Nagas, the serpent worshipers, who developed such high civilization in the south of India and the Indian peninsula were immigrants from *Pâtala* (America), who reached Asia in times anterior to the invasion of India by the Aryans.

"I do not suppose that sailors in those times were more careful than sailors in our days, and I have no doubt that they spread diseases among the inhabitants of the countries they visited, just as the crews of Captain Cook spread syphilis among those of the islands in the Pacific. The communication between Asia and America being then frequent there can be no doubt that such contagious diseases as syphilis and leprosy were disseminated throughout the earth's inhabitants as they are to-day, and it seems to me impossible to determine where such a peculiar disease originated. We know that at one time syphilis was as common in America, as leprosy in East India, and it is most probable that the inhabitants of these countries interchanged compliments; those of America introducing syphilis into Asia, those of Asia importing leprosy in America." . . . . . .

Diego de Landa, in a manuscript written in 1566 and entitled "*Relaceon de las Cosas de Yucatan*," in a chapter entitled, "*Varias Calamidades esperimentadas en Yucatan enel siglo anterior á la conquista, hurracan, pestilencias guerras*, etc." says, that "those who escaped took heart of grace to build houses, and cultivated the land, and multiplied themselves, being much aided by fifteen years of good and healthy weather, and that the last year was the most fertile of all; as they began to reap their harvest there broke out in the whole country some pestilential fevers, which lasted twenty-four hours. After these diseases abated, there came a stream of gnats. From this pestilence many people died, and a great part of the harvest remained ungathered. These miseries were succeeded by a pestilence of large pimples which rotted the body with great stench, so that their limbs fell off in four or five days."

This is the only passage of the "*Relaceon*" which mentions anything having the least resemblance to leprosy. There is falling off of the limbs, but they fall off in four or five days, and it is almost evident that the rottenness belonged to the soft tissues, and not to the bone. It may have been smallpox.

In Cogolludo's "*Historia de Yucatan*" (Diego Lopez Cogolludo, Madrid, 1688) where he gives a description of all the calamities, diseases especially, which afflicted the peninsula, there is not one line that can be interpreted as a reference to leprosy.

NOTE.—*Milagrosa, que no fe, sabe su origen, etc.* Miracles of all kinds due to an image of the Holy Mother. Cures an apostema on the sole of the foot, a tumor in the face, and in the throat. Fevers of every description cured. Sick stomachs cured by the Holy Image, etc.—(Lib. XII, Cap. XIX.)

De otros milagros.—An Indian woman, having given birth to a child, could not for a whole hour eject the natural superfluity, etc. Another feels sudden pains in the stomach, etc. Another woman feels a pain in the temples, which extends presently to the whole face; Holy Image brought, and patient cured. Fever of a youth cured. Other fever. During five months a boy 14 years old had had fever, and after a while his face and his legs swelled. Cured.—(Lib. XII, Cap. XX.)

The conquerors and original colonists seeing the continual sufferings from diseases, of the poor, strangers as well as aboriginals, founded a hospital, which has now existed for eighty years and more, at the date of this writing. How they founded it, the King being patron, how it was administered at the expense of the city and intrusted to the monks of St. Juan de Dios, is stated in this book, etc.—(Lib. I, Cap. XIV, p. 216).

Death of Landa. The time came which the Divine Majesty

[5] They suffered from elephantiasis.

had appointed for giving to the blessed Bishop Don Fr. Diego de Landa, the reward which his many services and virtues merited; he died in consequence of a bad cold which he took while preaching on the passion and death of Christ. He became feverish, and felt a puncture in the side. He sent for counsel to our hospital and our physician considering the pain accompanying the fever, judged that it was a pain of the side and bled him. The Bishop said at once that he believed himself to be dying and prepared for his last hour. Lot of absurd details.—(Lib. VI, Cap. XVIII.)

Enfermedad peligrosa en Merida, ano de 1609, etc.—In that same year 1609, in the month of September, the inhabitants of Merida were much troubled by a disease; the Spaniards had had little experience of it in this country, and it was very dangerous. It consisted in hot fever with measles and pustules. Processions resorted to. At the end of that year the disease passed away.—(Lib. IX, Cap. I.)

Don Gaspar Nunez de Leon mourat de melarchia, a word which is not in the dictionary, and has some relation with honey.—(Lib. XII, Cap. I.)

Milagro Notibilissime con unos Indios, etc. The miracles with Indians is this, in two words: they were deeply buried while digging, and by the intercession of San Diego, dug out again. (No leprosy.) Divers other accidents are reported. There was also a dying priest whom prayers recalled to life. —(Lib. XII, Cap. X, p. 709.)

Desgracios procedentes a la peste, etc. A number of ships taken and burned at sea. In June the pestilence began in Campeche, and soon the city was said to be entirely deserted. Orations, processions, etc. At the end of July the disease began in Merida, where many persons perished in a few days. (No leprosy.)—(Lib. XII, Cap. XII.)

Varios accidentes con que morian los enfermos, etc. Symptoms—Various accidents. Terrible headache and pains in all the bones, which seemed to go to pieces, or to be pressed as in a vise. After a short time violent fever sometimes, but not always with delirium. *Vomissements de sang corrompa*, and after this symptom few recovered; others had a flux of the belly, of choleraic humors. (Yellow fever?)—(Lib. XII, Cap. XIV.)

De algunos senalados religiosos que, etc. Some distinguished ecclesiastics who died of the pestilence. One mounts into the pulpit all right, and comes down with the symptoms of pestilence. Dies the eighth day. Another is infected while taking care of the sick. Other cases of the same kind. (Yellow fever?)—(Lib. XII, Cap. XV.)

(*To be continued.*)

SOCIETY PROCEEDINGS.

National Association of Railway Surgeons.

Abstract of the Proceedings of the Eighth Annual Meeting, held in Chicago, Ill., May 1, 2 and 3, 1895.

FIRST DAY—MORNING SESSION.

The Association convened in the hall of the Young Men's Christian Association, and was called together by the Chairman of the Committee of Arrangements, Dr. A. I. Bouffleur, of Chicago.

Prayer was offered by Rev. Dr. Thomas.

DR. BOUFFLEUR introduced Hon. A. F. Walker, of Chicago, who delivered an "Address of Welcome." Dr. W. B. Outten, of St. Louis, responded on behalf of the Association.

PRESIDENT THORN was then introduced by Dr. Bouffleur, and delivered the

PRESIDENTIAL ADDRESS,

In which he reviewed the foundation and growth of the Association, which in 1888 had 181 members, and now has over 1800. A tender tribute was paid to the late Dr. A. W. Ridenour, of Massillon, Ohio, the inspirer and progenitor of the Association.

The reports of the Secretary and Treasurer were then read, and on motion, adopted.

DR. WOOSTER, of Grand Rapids, Mich, offered a resolution pledging support to *The Railway Surgeon*.

On motion, the Association adjourned till 2 P.M.

FIRST DAY—AFTERNOON SESSION.

After some routine business was transacted, the reading of papers was proceeded with.

DR. J. B. MURDOCH, of Pittsburg, Pa., read a paper entitled

AMPUTATIONS CONSECUTIVE TO TRAUMATISMS.

In brief, Dr. Murdoch said: Amputations are performed consecutive to traumatisms for the following reasons:

1. To save life, because of the fact that nature, unassisted, would succumb before the patient could recover from the injury; and 2, because the limb has been so destroyed by the injury that nature, even when assisted, is unable to restore it sufficiently so as to be useful to its possessor.

When should amputation be performed? The answer to this question is plain. If the amputation is inevitable it should be done at the time when it can be done with the least risk to life.

In coming to a conclusion whether we shall amputate or not, we must consider the age of the patient, his habits, the condition of his health, his environment, and the care he will receive while under treatment. We must also consider whether, in case the limb can be restored, it will be more useful and less painful than a mechanical appliance. When the surgeon is in doubt he should give the patient the benefit of it and withhold the knife.

A spirited discussion followed this paper, in which Drs. Thos. H. Manley, W. P. King, Emory Lanphear, W. B. Outten, E. W. Lee, P. H. Hoy and J. L. Eddy participated.

DR. JOHN E. SYLVESTER, of McArthur, Ohio, narrated an interesting case of bloodless amputation at the hip joint, the patient being a 16-year old boy who took 164 grains of morphia in twenty-four hours, and is to-day alive and well.

DR. W. H. BUECHNER, of Cleveland, Ohio, contributed a paper on "Pirogoff's Amputation," strongly favoring it.

"Silicate of Soda in Surgical Dressings," was the subject discussed by Dr. S. R. Wooster, of Grand Rapids, Mich., in which he highly recommended it in preference to other material.

A paper by Dr. Thomas H. Manley, of New York, was read by title, at the request of the author. It was entitled "Traumatic Arthroses."

The Association, on motion, then adjourned till 9 A.M., Thursday.

SECOND DAY—MORNING SESSION.

DR. B. MERRILL RICKETTS, of Cincinnati, Ohio, read a paper entitled

EMERGENCY SURGERY IN THE ABDOMINAL CAVITY.

Pain is not always indicative of a large amount of exudation.

The presence of a large amount of fluid is not always accompanied by a rise in temperature.

There is no means of determining the character of the fluid without exploration.

The use of an exploring needle is the only means of positively determining the presence of fluid.

The temperature is sometimes subnormal.

The fluid should not be allowed to reach above normal in quantity.

It should be removed as often as necessary to keep it within the normal amount.

Open drainage should be made in all cases of tubercular fluid, even though it be within the spinal canal, by means of the lumbar puncture.

Surgical anesthesia is not necessary in case of cerebral meningitis.

The probabilities are that the irrigation of serous cavities by some pus destroyer may aid much in effecting a permanent cure.

Narcotics in any form are contra-indicated; absorption is less likely to occur with than without them.

Antithecine may prove itself one of the most valuable means in treating tubercular serous cavities without mixed infection.

HON. R. C. BELL, of Fort Wayne, Ind., was then introduced, and addressed the Association on the subject of

AN EXPERT WITNESS.

In beginning his address Mr. Bell said:

I am not presumptuous enough to think for a moment that I can instruct you in any of your duties as expert witnesses. Railway surgeons are very frequently called to the stand to testify, growing out of their employment by railroads. It must be so, and railways must employ surgeons. There are several reasons, a few of which I will mention. First, it is the requirement and dictate of humanity. As long as railways are operated, as long as we are to fly, as it were, upon wings from one side of the continent to the other, day and night, accidents will occur. Human suffering follows and that suffering must be alleviated by the best means that are attainable.

When you are called to the stand as expert witnesses you are placed in an exceedingly delicate position. You are known to be in the employment of a railway company, and

they ignore too often the fact that you are not employed as witnesses. You have been employed for other services. But you are required to give your opinion upon subjects in a manner which may militate for or against the respective litigants. I wish to add my testimony to the fact that after an experience of a quarter of a century I can not recall a single instance when the honest judgment and opinion of its railway surgeon has swerved a hair's breadth because of his employment by a railway company. I was witness as a lawyer to the fact of the elevation of the standard of experts and their testimony by the system of medical ethics that has been adopted and become general throughout our country. Railway surgeons because of their employment are not expected to become claim adjusters or detectives for railway companies. And nothing can be more embarrassing to a railway attorney in trying a case than to find the attending railway surgeon has made himself a partisan on the company's side.

Let me give you a little pointer. Don't know too much. It is the way to avoid a good deal of trouble on the witness stand. A man can tell what he knows, but, in the language of the old schoolmaster, "It is exceedingly difficult for an individual to communicate to others that which he does not himself possess."

DR. MILTON JAY, of Chicago, followed with a paper entitled "Thoracic and Pulmonary Injuries."

DR. ARTHUR D. BEVAN, of Chicago, read a paper entitled

REAL AND ALLEGED INJURIES OF THE SPINE,

which was freely discussed. The more important points made by Dr. Bevan were:

The subject of injuries of the spine has received in the last thirty years more attention from medico-legal experts than possibly any other subject.

Real injuries of the spine present positive and immediate symptoms.

Alleged injuries of the spinal cord without positive and immediate evidence of gross lesion are either cases of malingering or abnormal cerebral conditions, psychoses, or a combination of the two.

These psychoses are the results of two factors: first, a brain readily affected by suggestion; or, second, suggestions furnished by an accident with or without injury to the individual, or by suggestions furnished by the hope of pecuniary gain; and lastly, and of greater importance, suggestions furnished by medical attendants.

These cases all recover when the exciting causes are removed, rapidly under proper surroundings and advice, but recovery may be indefinitely postponed by improper surroundings and improper advice.

These psychoses will not receive their proper medico-legal position until the medical profession has been generally educated in the subject, and until legal means are provided for the punishment of malingerers and their alleged medico-legal experts.

In the afternoon the Association attended a surgical clinic given by Dr. N. Senn in the upper amphitheater of Rush Medical College. Dr. Senn showed several cases upon which he had previously operated, and also operated on several.

THIRD DAY—MORNING SESSION.

DR. W. B. OUTTEN, of St. Louis, read the report of the Committee on Necrology, which, on motion, was referred for publication.

The election of officers was proceeded with, the result being as follows:

President—Dr. J. B. Murphy, of Chicago.

Secretary—Dr. D. Emmet Welch, of Grand Rapids, Mich.

Treasurer—Dr. E. R. Lewis, Kansas City, Mo.

Vice-Presidents—Drs. W. B. Rogers, of Memphis; A. D. Bevan, Chicago; E. F. Beasley, Lafayette, Ind.; H. Logan, The Dells, Ore.; Geo. Graves, Herkimer, N. Y.; P. F. Vasserling, St. Louis, Mo.; A. C. Scott, Temple, Texas.

Executive Committee—Drs. S. S. Thorn, Toledo, Ohio; J. A. Barr, McKee's Rock, Pa.; A. I. Bouffleur, Chicago.

Assistant Secretary—Dr. S. P. Wooster, Grand Rapids, Mich.

Chairman Committee of Arrangements—Dr. B. M. Ricketts, of Cincinnati, Ohio.

Chairman of Committee on Transportation—Dr. W. B. Outten, of St. Louis, Mo.

Place of next meeting—Cincinnati, Ohio.

Following the election of officers, the reading of papers was again taken up.

DR. W. R. HAMILTON, of Pittsburg, read a paper entitled "Syme's Amputation."

DR. C. D. WESCOTT, of Chicago, read a paper entitled

THE EYE IN RAILWAY SURGERY.

He said: An injury to the eye is the most common accident in the whole list. Hot cinders and molten metal frequently burn quite deeply into the conjunctiva. After they have been removed under cocain and thoroughly cleaned with a bland antiseptic, a small quantity of sterilized vaselin or olive oil dropped into the eye is very soothing and grateful. It is usually best not to bandage an eye thus injured, but the lid should be frequently bathed with warm borax water and the eye flushed with a saturated solution of boracic acid every three hours. Cocain should not be prescribed as an anodyne. Iced compresses will usually relieve the pain if so applied when the pain is continuous. In our shops and factories all over the world employes are daily jabbing at the cornea with sharpened sticks, pocket knives, horseshoe nails, and other improvised instruments, in attempting to remove pieces of stone, steel, emery, etc., which are innocent as compared with the instruments and methods employed. If these offending particles are not deeply imbedded in the cornea they may usually be removed without the slightest trouble by simply wiping them away with a little swab made by twisting some cotton on the end of a toothpick or something like it.

IS THERE ANY SPECIAL FORM OF DISEASE PECULIAR TO THE RAILWAY SERVICE?

This paper was read by DR. OUTTEN, of St. Louis. His remarks were founded on the cases occurring in the past eight years among the employes of the Missouri Pacific Railway system. Dr. Outten said in substance: It may be a surprising fact to some that the most sickness comparatively, exists among the section hands, and the next highest is the clerical force. A compilation shows the proportion of illness in different occupations as follows: Section men, 28,687; clerks, 16,269; engineers, 6,389; firemen, 8,024; brakemen, 11,390. In proportion to their number the most healthy classes are the engineers and brakemen. An analysis of 170,570 cases treated in the hospitals of the Missouri Pacific system shows that 64 per cent. of the total number of cases were rectal diseases. This certainly proves that rectal disease is peculiar to the railway service and due to the enforced irregular habits of railway employes. Other statistics gleaned from the reports show diseases ranking next highest are malarial fever, rheumatism, lumbago, diseases of the respiratory and digestive organs, and nervous diseases. I want to especially mention the fact that in over 170,000 cases among our employes only thirty-five were to be classed under the head of alcoholism.

DR. J. A. BARR, of McKees Rock, Pa., read a paper entitled

THE CARE OF THE INJURED FROM THE PLACE WHERE INJURED TO THE HOME OR THE HOSPITAL.

He said: The first step in the care of the injured should be taken by the railway company in the providing every engine with a box containing a rubber compress, absorbent cotton, bandages, etc., with instructions how to use in case of accident until the surgeon arrives; with caution against the too free use of stimulants in the shape of whiskies, wines and brandies, for we have seen much harm result from their use by persons not knowing the true nature of the injury; also caution against the use of dirty waste, dirty handkerchiefs, black oil and other lubricants being applied to the wounds; for we take it that every railroad injury, from the very nature of the case, is septic, and these things only add fuel to the fire. The surgeon should keep on hand at all times an emergency bag containing anesthetics, antiseptic dressings, bandages, tourniquet, stimulants, and instruments for all emergencies. When an injured person is liable to be some time in transit, the wound should be thoroughly cleansed by washing it in hot water, carbolized water, or better still, a solution of antipyrin. For the relief of pain, morphin, administered hypodermically, and cocain, applied locally, are the best remedies. When there is shock get the patient away from the crowd, cover him with blankets, and use in addition hot water bottles, hot irons or anything else that can be had, placing them under the body, but taking care not to burn an unconscious patient. Then give stimulants of alcohol in small, oft-repeated doses. In cases of severe burns or scalds apply common baking powder, mixed with water to the consistency of cream to the burnt surface. Another very good thing is simple petroleum spread thickly on cotton, cotton batten or old linen and applied to the surface. To transport a patient place him on a cushion, cover him with clothing or anything to keep him warm, place him on the floor of the car with the head toward the front end of the train, guard against draughts of air, and observe the caution against the too free use of stimulants.

HON. CLARK BELL, of New York, spoke briefly on the topic

PERSONAL EXAMINATION OF PLAINTIFF IN PERSONAL INJURY CASES.

He stated that after a long legal strife it was now the law in all States that a plaintiff in a suit for damages for personal injury must submit to an order of the court to a personal examination by experts as to the real nature and extent of the injuries. He urged the Association to labor for the adoption of similar laws in every State, the law to contain provisions in cases where the plaintiff is a woman.

COLOR PERCEPTION IN RAILWAY EMPLOYES—DO THE ACCEPTED METHODS OF TESTING MEET THE REQUIREMENTS?

Was the subject discussed by DR. LE ROY DIBBLE, of Kansas City. He said: Gross injustice has been done many faithful employes by Holmgran's tests. I think we should pay more attention to a man's mental acuteness than to the acuteness of his vision and color sense, or the cast-iron rules laid down for our guidance. I do not believe it is the intention of the managers of our roads to do any man injustice, but the oculists employed should be men of wide experience, and if they find a man deficient in color sense and yet by actual practical test, he can overcome this defect, he should be retained. It is impossible to measure one man's capacity by another's, mentally or physically. Our rules smack too much of trades-unionism, *i. e.*, measuring every man's capacity not by the highest standards but by the lowest, a common dead level of mediocrity. They should not be like a chain, just as strong as the weakest link, but be put on the basis of common sense, experience and mental capacity of the individual.

DR. OUTTEN indorsed the views of DR. DIBBLE.

DR. C. H. WILLIAMS, of Chicago, showed the tests used in examining employes of the Chicago, Burlington & Quincy Railroad.

Some unfinished routine business was then taken up and disposed of quickly, after which the newly elected President, DR. MURPHY, was installed.

Several papers on the program were read by title in the absence of the authors, and owing to lack of time.

It was ordered that no abstract or report of the proceedings should appear in any medical journal except the *Railway Surgeon;* as the doors had not been closed, the JOURNAL takes pleasure in rescuing from oblivion the very excellent papers that otherwise would have been buried in the pages of an exclusive periodical.

On motion, the Association adjourned to hold its next meeting in Cincinnati, Ohio.

American Electro-Therapeutic Association.

Fourth Annual Meeting held in New York Academy of Medicine, New York, Sept. 25, 26, and 27, 1894.

WILLIAM J. HERDMAN, M.D., President.

(*Continued from page 682.*)

MONSIEUR GAUTIER'S paper was read by DR. A. LAPTHORN SMITH.

ELECTROLYSIS IN URETHRAL STRICTURE—A NEW ELECTRODE.

BY GEORGE GAUTIER, M.D., PARIS, FRANCE.

Rigid electrodes with long and thread-like conductor are generally difficult to handle and dangerous for reaching urethral strictures. They get spoiled at each application and are very expensive. For a year past I have employed a new instrument that will supplant them with advantage in all cases and which is easy and harmless to apply. This instrument is composed of a urethral bougie made of gum, the diameter of which varies with the cases to be treated, because we can have them made of all shapes in order to treat accessible strictures; those of the esophagus, urethra, lacrymal canal or rectum. This bougie is cut off at 6 centimeters from its conical end and a platinum tip is screwed on to it 1½ centimeters in length and of the same diameter as the bougie. This metal end is connected with the negative pole of the battery by a flexible wire which is fixed in the bougie during its manufacture. The introduction of the electrode is easy and made without violence or pain; it follows all the curves of the canal, does not irritate, and permits us to make a slow gradual dilatation which by degrees changes and modifies the nutrition of the parts and surely saves the patient from false passages, retention, and ruptures of the urethra.

The mode of operating: 1, find out beforehand with the measuring bougie the situation of the stricture, its nature and especially its caliber; 2, inject into the bladder half a pint or more of boracic acid solution; 3, make use of an electrode of the same diameter as the exploring bougie.

Duration, intensity and nature of the operation. The electrode is connected with the negative pole of the battery, the positive pole being attached to a belt 18 centimeters long by 12 wide, covered with amedo or chamois skin, and which is applied to the abdomen or thigh. At the moment when the metallic end of the bougie reaches the strictured part of the urethra we turn on the current until 10, 15 or 20 milliampères at the most are reached. At this moment we push in the instrument without any violence until it reaches the bladder. If the stricture is long and hard, it requires ten minutes or a quarter of an hour with an intensity of 12 or 15 milliampères. If the strictures are short and are of unequal dimensions it will be necessary first to treat the longest strictures and to put off for a week the treatment of the other ones. Before withdrawing the electrode we turn off the current and the patient empties his bladder, thus securing the antisepsis of the latter. It is not advisable to employ too large a bougie at first, but the next day and each day following to introduce a catheter, which will also serve to fill the bladder with boracic acid solution.

A second and even a third electrolytic application will be necessary if the strictures are near together and numerous, because with the electrode the dilatation is gradual. We should always allow an interval of ten days to elapse between each application.

Results: I have by this means treated six urethral strictures; the results were in the six cases excellent. I did not notice any complication. I can not say that the cures are definite, because they are of too recent date, but I recommend this proceeding to my brethren, because of its efficacy, its painlessness and harmlessness.

MARGARET A. CLEAVES, M.D., New York City, read the following paper:

A MEANS OF CONTROLLING AND REGULATING THE STATIC INDUCED CURRENT.

The so-called "static induced," whether developed from a frictional or an influence machine, is a current of an alternating discontinuity, whereby currents of alternating directions commence and cease intermittently.[1]

It is characterized by a series of oscillations, and these may vary, according to the size of the condenser from a minimum of less than 1,600 periods per second (or within the limits of audition) to 1,000,000 or more periods per second.

The therapeutic value of this current is thoroughly recognized, but the difficulty of controlling and regulating it has no doubt militated against its usefulness. In fact the only method of control heretofore in use has been that of separating the discharging rods as slowly and gently as possible. This has effected an adjustment of the frequency, but has not provided for the regulation of the other important factor, namely the quantity or amperage which might be desired with a given number of periods.

When this separation is performed with the greatest care it is still impossible to do away entirely with sudden shocks and jars which are painful to all in varying degrees but especially to nervous sensitive patients.

A certain amount of experimental work in conditions where a profound massage effect was desired, especially in pelvic conditions, convinced me that to obtain its full measure of usefulness and thus to insure its highest therapeutic success, it was necessary to be able to regulate and control the volume or amperage of this current with the same nicety that is possible with the constant, induced or sinusoidal current.

Despite the difficulty encountered in securing this control of the static induced on account of its immense E. M. F., the writer undertook in the early part of 1894 to make some experiments with various patterns of water rheostats, to see if by any possibility a regulator could be constructed on this principle through which this current could be passed without the danger of spark leakage. The first experiments were made with the Bailey water rheostat, and I found that so long as I kept my spark gap as short as the distance between the two milled screw heads, I could perfectly control it.

The same thing was proved with other water rheostats, and the fact established that all that was necessary was to keep conducting material at the maximum sparking distance apart.

Finally, the instrument shown in the cut was constructed for me by the Galvano-Faradic Mf'g Co., of New York City.

[1] Professor Houston.

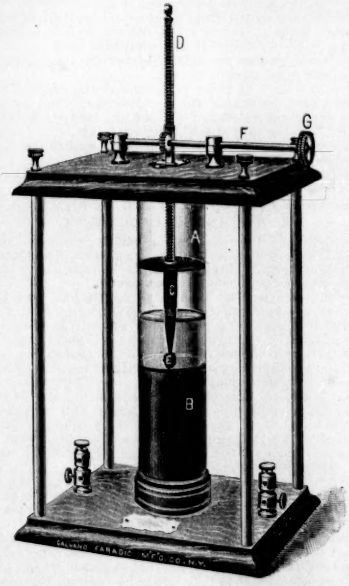
Inclosed in the glass tube *A* is a cup of pure carbon *B*. This cup is secured at the bottom and forms one of the terminals, the other terminal a tapering carbon rod *C* fastened to a metal rod *D* and wrapped with a sponge at the apex *E*.

On the top of the rheostat connected with a coarse double thread screw (a continuation of the metallic rod *D*) is a metal bar *F*, ending in a large milled screw head *G*. By turning this screw head the carbon point is raised and lowered at will.

The glass is filled with water until it touches the sponge on the end of the carbon rod.

The rheostat is wired on the principle of a shunt circuit and has double binding posts; one to receive the wires from the Leyden jars, the other for the conducting cords distributed to the patient.

The rheostat may be connected directly with the machine in the room in which it is placed, or heavy well insulated wires may be connected with the static induced binding posts and carried through apertures in the wall to an appropriate place at a distance, keeping them at all times the maximum sparking distance apart. It may then be placed at a convenient point for daily use, by the right hand of



one's operating table, for instance, and connections made in that position with the wires from the machine.

It is possible to use it with any size of the Leyden jars and a spark gap of from one to four or five inches. The latter is only desirable with the smallest jars, but with the longer spark gap the current loses the rapidity of its oscillations but gains in E. M. F.

When the rheostat is permanently connected with the machine, as I have indicated, the first thing to do is to arrange the spark gap of the size desired and set the machine in motion, then connect the conducting cords from the rheostat to the electrodes through which the current is delivered to the patient. When all the connections are made for the administration of treatment, the tapering carbon fastened to the metal rod is gradually raised by turning the screw until the current strength desired for the particular application is reached. This can be done to such an extent as to produce the most violent muscular contractions without the patient suffering from any pain, jars or shocks. With appropriate connections every voluntary muscle of the body can be put into a state of activity, with the exception of a few muscles of the head and face, and the temperature raised from a fraction of a degree to 2 degrees. It accomplishes, in common with the usual administration by means of sparks, a marked nutritional gain. By its use all metabolic processes are encouraged. In vagino-abdominal applications, patients speak of the effect as much more pronounced than from either the induced or sinusoidal currents; an effect which they characterize as a feeling of lightness and buoyancy in the pelvis with an ability to walk with greater ease. It is not well borne in subacute inflammatory conditions of the pelvic organs. Patients with such trouble are prone to have recurrence of pain and soreness, save with the mildest applications.

The current best adapted to the treatment of pelvic conditions where relief from pain is desired as well as relief from congestion, is obtained by using the large or medium jars standardizing the frequency by a very small spark gap, say from one-eighth to one-half of an inch, and gradually turning on the whole available current strength by adjusting the controller. Where profound massage effect is desired, as in prolapsus uteri or relaxed vaginal walls, a longer spark with its greater E. M. F. but with less rapid oscillations is of greater value, and for such uses no other current can take its place. By means of this instrument when once the spark gap is arranged, the machine in motion and the patient in circuit, the operator is able to make any application, general intra-uterine, intra-vaginal, intra-nasal, to the eye or the ear, and so perfectly regulate the current as to make the treatment absolutely painless.

As a result of the physical peculiarities of the static induced, it is impossible to place a resistance in the circuit without damping the oscillations. This damping out effect I can readily appreciate both by ear and touch, but as I am in the habit of increasing the number of revolutions of my machine under these circumstances I am able to compensate for any such loss and maintain sufficiently rapid oscillations, and thus secure the same clinical effect as when there is no rheostat in circuit.

The form of the rheostat is not a new one but an adaptation from a constant current controller already on the market. The features of originality to which the writer lays claim are the conception of the idea of regulating the current strength of the static induced without varying (in any practical degree) the frequency of the oscillations and the peculiar form of rheostat by which that idea is reduced to practice. This rheostat was shown at the New York Electro-Therapeutic Society last April, and has been used by the writer ever since with perfect satisfaction.

68 Madison Avenue.

The Influence of the Nervous System on Absorption.—(Leubuscher and Tecklenburg, *Virchow's Archiv.* Bd., CXXXVIII, Hft. 2.) The writers publish in brief the results of fresh experiments and of new trials of older ones, which appeared in detail in Tecklenburg's inaugural dissertation, Jena, 1894. These results are as follows:

1. Goltz' opinion, that after destruction of brain and spinal cord the vascular tonicity is increased, so that a frog loses only a few drops of blood from the opened aorta, is insufficient to account for his observation on the loss of blood in the operation.

2. A short time after severing the nerves of one extremity there was seen in that extremity, a dilatation of the vessels, slowing of the blood current and, as a consequence, delayed absorption. This disturbance was compensated after a short time.

3 and 4. If coils of empty intestines are exposed and the corresponding nerves in the mesentery are severed, fluid collects within the coils, pale and clear, alkalin, unaffected by heat, and acting in no way upon albumin or starch. The fluid must therefore be a transudation from the blood, not a secretion from the intestinal mucous membrane. Half as much iodid of potash (in solution) is absorbed from the intestinal coil whose nerve supply is cut off, as from a coil of equal length with full nerve connection. In the jejunum more is absorbed than in the ileum.

5. Dogs in whom the large abdominal ganglia were extirpated, showed after the operation depression, diarrhea, and later, despite feeding, an emaciation, which was overcome slowly, seven to eight weeks after the operation. The urine meanwhile showed an acid reaction, as in starvation of herbivora. Sugar was never found, traces of albumin often, small quantities of blood rarely.—*Centralblatt für innere Medicin.*

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SATURDAY, MAY 11, 1895.

FOUR "SLUM" CENTERS.

The four American cities—New York, Chicago, Philadelphia and Baltimore—have been made the subject of a voluminous report regarding their "slums," or as DR. ELISHA HARRIS was wont to style them, "les pauvres faubourgs," by the HON. CARROLL D. WRIGHT, Commissioner of Labor. The report is a provisional one and is addressed to the President. The funds set apart for this work amounted to $20,000 and were wholly inadequate to an exhaustive collection of the facts, so that the centers of the fields, only, were undertaken to be covered.

The report is a book of 620 pages, the larger proportion of which is full of tables conveying finely comminuted tabulated information as to age-periods of inhabitants, nativity and parentage, size of families, illiteracy, occupations and weekly earnings, school attendance, condition of children, condition of married women having specified number of living children, numbers of families and individuals in tenements, the health of people living in the slums, sanitary condition of tenements. About one-seventh part of the total estimated slum population of the four cities, or 582,000 was reached; namely, 83,852 souls are comprised in DR. WRIGHT'S report.

The slum population is largely foreign-born; in New York it is more than 62 per cent.; in Chicago it is 57 per cent.; in Philadelphia it is 60 per cent., but in Baltimore it is not above 40 per cent. However, if we look at the total foreign populations of the cities, we find that the foreign-born population of Baltimore is 15.88 per cent.; in the slums it is 40.2; of Chicago 40.98, in the slums 57.51; in New York City 42.23, in her slums 62.58; in Philadelphia 25.75, in her slums 60.4. Of the nationalities tending to these slums, the Italians predominate in Chicago, New York and Philadelphia, while in Baltimore Germans give the largest percentage; Russians and Polacks come second in Philadelphia and Baltimore. The Irish and Poles are second in New York, while Austro-Hungary and Russia are second in Chicago.

As DR. PORTUGALOFF has expressed his views of rapid up-rising of the land of PETER THE GREAT, when he says: "Not many centuries ago a great desert stretched where now is Russia and where now a smell as of myriads of pinched bed-bugs is spread all over Eastern Europe," so do Russia and Italy and Poland send to our cities their unclean slum majorities with odorous qualities and difficult sanitary problems.

The percentage of illiteracy is much higher in the slums than in the cities at large, and in all cases the higher percentage of illiterates is among the foreign-born. The range of illiteracy is expressed by 47 per cent. in New York (the highest) and 20 per cent. in Baltimore, where it was the lowest; Philadelphia had 37 and Chicago 47 per cent.

The health of the slum-dwellers was found to be better than was to be expected. This important branch of the inquiry was confided to DR. ALFRED S. HOUGHTON, of New York City. The reports of the experts and agents employed for this inquiry are nearly unanimous in showing small proportional sickness in the slum centers.

It should be stated that the canvass was made in the most thorough manner—just as if a Federal census were in progress—each house and every floor being visited and the inquiry conducted in respect of each person therein dwelling. The schedules show that no more sickness prevailed in the slums than in other parts of the respective cities. While in some of the districts there were found abjectly wretched conditions of the domicile, the small number of cases of sickness was a distinct surprise to the canvassers. The canvass was made in the spring of the year, the windows were everywhere open and the air of the apartments was, far less foul than in the winter season.

Then, too, in all of these cities, the families are too poor to long retain their sick members, if there are hospital accommodations available. In nearly all these cities there are hospitals for general and for specialized diseases, so that if a worthy tenement-house dweller falls sick there is commonly a hospital bed waiting for him somewhere.

O_2 N_2 A_1.

It is no longer correct to represent the chemic composition of the atmosphere by the familiar symbols O_2 N_2—argon, the new element, must be taken into the account, and the formula now is O_2 N_2 A_1.

This era-marking discovery by LORD RAYLEIGH and PROFESSOR RAMSEY, which was fully described in the

JOURNAL of Sept. 1, 1894,[1] is the scientific sensation of the day, and although if the HODGKINS fund prize has been awarded to the discoverers, it has escaped observation, they continue to be the recipients of the highest tokens of recognition by learned bodies everywhere. Among the most recent of these tributes is the award to LORD RAYLEIGH of the FARADAY gold medal by the Chemical Society of London, and of the LEBLANC medal to PROFESSOR RAMSEY by the Société Chimique de Paris; while it is just announced that "on the recommendation of the National Academy of Science the trustees have voted to make the first award of the BARNARD medal for the most important discovery in physical or astronomical science to LORD RAYLEIGH, the discoverer of argon, a constituent of the atmosphere."

In searching for argon in other compounds, PROFESSOR RAMSEY unearthed the fact that an American had barely missed anticipating himself and LORD RAYLEIGH. In Bulletin No. 78 of the U. S. Geological Survey (1892) is a paper by MR. W. F. HILLEBRAND "On the Occurrence of Nitrogen in Uranimite," in which is detailed the process by which the investigator had produced a gas whose properties, as described in the paper, leave little room for doubt that it was argon, in combination, as now known, with helium. From the hints in MR. HILLEBRAND'S paper PROFESSOR RAMSEY selected cleveite, one of the uranimite group, and there found the object of his search. This discovery is of only less interest than that of argon itself, for helium is but little known on account of its supposed rarity.

PROFESSOR BERTHELOT, of the Paris Chemical Society, has also been experimenting with the new gas, and claims to have succeeded where LORD RAYLEIGH has heretofore failed—that is, in effecting a chemic combination of argon. In the course of his experiments to this end, he obtained spectroscopic effects which incline him to believe that the aurora borealis is caused by the action of electric currents on argon and other elements in our atmosphere—hereafter to be indicated by the symbols O_2 N_2 A_1.

FOR REVENUE ONLY.

The suggestion in the JOURNAL editorial of last week,[1] that the bias of the Report of the Royal Opium Commission was dictated by commercial considerations, receives support from other sources. That exceedingly well-informed journal, the New York *Sun*, says that "East Indian business interests of all kinds must be vastly relieved at the tenor of the British Royal Commission's report on the opium question. That Commission was appointed in the autumn of 1893 to consider the evils of opium eating and the financial difficulties that would be involved should the traffic be abolished by law."

[1] "The Hodgkins Fund Prize," p. 355, vol. XXIII, No. 9.
[1] "Defense of Opium Eating," p. 685.

The Commission has found no evils from the "temperate use of opium in India"—on the contrary, such use may be "even beneficial," as it argues from the fact that "the opium habit prevails among some of the most manly, hardworking, thrifty races of India." But the financial difficulties that would be involved, should the half million acres now under poppy cultivation be made unproductive by an adverse report on the use of opium, are very obvious.

The dictum of the Royal Commission will not be accepted by the medical world outside of India, nor even there outside of the native races. As the *Medical Record* says: "So far as Caucasians are concerned we can not too emphatically assert that the Commission's conclusions do not apply at all. The use of opium is a distinct evil. Its moderate use is impossible. There are practically no temperate opium users. The opium eater always wants more and continues to want more until he is physically and mentally a wreck."

The defense of the opium habit by Great Britain is made for revenue only.

"CHOLERA AND OYSTERS."

Not content with having fixed the stigma of being a typhoid-fever carrier upon the oyster, our English cousins are now attacking that hitherto supposedly innocuous bivalve as a disseminator of Asiatic cholera. Following the *British Medical Journal's* series of articles on the conveyance of certain water-borne diseases by oysters and other shellfish comes a report by DR. THORNE THORNE to the Local Government Board upon the distribution of cholera in England in 1893, from which it appears that the disease was conveyed to different parts of the Kingdom either by oysters shipped from, or in the persons of excursionists who had eaten oysters in, Grimsby and Cleesthorpe—two popular seaside resorts at the mouth of the Humber.

In its review of the evidence submitted in the report the *Journal* says: "Reverting, in conclusion, to the general question, we would point out that no absolute conclusion is come to in the report, but that portion of it dealing with the question of shellfish and the spread of cholera concludes with words which can not be held to go beyond the inference which may properly be drawn from all the facts set out. They are as follows: 'One thing is certain—oysters and shellfish, both at the mouth of the Humber and at other points along the English coast line, are at times so grown and stored that they must of necessity be periodically bathed in sewage more or less dilute; oysters have more than once appeared to serve as the medium for communicating disease, such as enteric fever, to man; and so long as conditions exist, such as those with which the oyster trade of Cleesthorpe and Grimsby is shown to be associated,

—conditions which may at any time involve risk of the fouling of such shellfish with the excreta of persons suffering from diseases of the type of cholera and enteric fever—so long will it be impossible to assert that their use as an article of diet is not concerned in the production of diseases of the class in question.'"

Henceforth let the "blue point" be anathema, the oyster be ostracized—anyway until next September.

THE COLLECTIVE INVESTIGATION.

In response to many requests, the JOURNAL reproduces in this number the blank form for the collective investigation of the antitoxin treatment of diphtheria, which will be found, as before, following the last page of reading matter. The contributions to this attempt to arrive at a consensus of opinion on a most important and warmly debated question are already so numerous as to give promise of an interesting and weighty set of conclusions, and the promptitude of the responses is no less gratifying—the first filled-out form was received from DR. E. E. FYKE, of Centralia, Ill., 252 miles distant, on Monday morning, April 22, the blank form being first printed in the issue of Saturday, April 20. Not less alert was our San Francisco correspondent, DR. KUHLMAN, whose letter, under date of April 25, appears on another page.

Touching the flat-footed assertions contained in this letter, the JOURNAL will only remark that that which is pronounced "impossible of execution" is being executed. *Ex uno disce omnes.*

PRESIDENT COLE.—As we go to press with a largely increased edition we learn by telegraph of the election of DR. RICHARD BEVERLY COLE, of San Francisco, to the Presidency of the AMERICAN MEDICAL ASSOCIATION. His unfaltering zeal in the cause of science, and his faithful services on behalf of the ASSOCIATION, are well known to the entire profession.

The next annual meeting will be held in Atlanta, Ga., the city of historical reminiscences, noted for its salubrity, its educational advantages and its commercial activity. The members of the ASSOCIATION will have the opportunity of renewing the pleasant acquaintances formed five years ago.

CORRESPONDENCE.

Editorial Correspondence.

FORT WAYNE, IND., May 5, 1895.

TO THE JOURNAL:—The JOURNAL Special Train over the Pennsylvania Railroad, left the Union Depot promptly at 3:15 P.M., as advertised. The train was equal in its appointments to all that had been claimed for it by the railroad company. The following are some of those who were on the train:

U. O. B. Wingate and wife, Milwaukee, Wis.
W. H. Washburn and wife, Milwaukee, Wis.
H. B. Stehman, Chicago.
J. T. Priestley and wife, Des Moines, Iowa.
D. W. Graham, Chicago.
M. E. Connell, Wauwatosa, Wis.
W. B. Hill, Milwaukee, Wis.
F. W. Rogers, Hartford, Wis.
W. Q. Marsh, Sierra Mojada, Mex.
D. M. Thurston, Beeville, Tex.
W. Whitford, Chicago.
Chas. H. Gillespie, Chicago.
W. C. Abaly, Madison, Wis.
G. G. Beethooven, C. Johnston Smith, Anheuser-Bush Brewing Association.
H. B. Ellis, Los Angeles, Cal.
Wm. LeMoyne Wills, Los Angeles, Cal.
C. F. Greene, Chicago.
J. B. Charlton, Clear Lake, Iowa.
A. C. Wedge and wife, Albert Lea, Minn.
C. G. Pauly, Iowa.
E. H. Dorland, Chicago.
C. Fenger, Chicago.
U. B. Will and wife, Peoria, Ill.
N. Senn, Chicago.
L. H. Montgomery and wife, Chicago.
E. S. Talbot, Chicago.
Daniel R. Brower, Chicago.
T. J. Sullivan and wife, Chicago.
Albert Sutton, Tacoma, Wash.
J. W. Graham, Denver, Colo.
J. B. Murphy, Chicago.
Joseph Eastman, Indiana.
W. B. Rogers, Memphis, Tenn.
W. X. Sudduth, Minneapolis, Minn.
Marie L. Mergler, Chicago.
Edward Jackson, Denver, Colo.
A. C. Corr, Carlinville, Ill.
W. R. Fringer, Rockford, Ill.
A. W. Richards.
John W. Bean and wife, Ellensburg, Wash.
James W. Cokenower and wife, Des Moines, Iowa.
R. Beverly Cole, San Francisco.
J. E. Woodbridge, Youngstown, Ohio.
A Garcelon, Lewiston, Me.
J. B. Hamilton, Chicago.
R. A. McClelland, Yorkville, Ill.
M. C. Knight, Aurora, Ill.
Chas. Truax, Chicago.
A. J. Horlick, Racine, Wis.
A. E. Remick, Chicago.
M. L. Hildreth, Lyons, Neb.
H. B. Sears, Beaver Dam, Wis.
H. C. Whitney, Burlington, Iowa.
F. E. Sampson, Creston, Iowa.
Hugh T. Patrick, Chicago.
Geo. W. King, Helena, Mont.
J. M. Wick, Cedar Falls, Iowa.
D. W. Smouse, Des Moines, Iowa.
D. W. Crouse, Waterloo, Iowa.
W. R. Skinner, Cedar Rapids, Iowa.
B. H. Criley, Dallas Center, Iowa.
F. C. Hull, Carlisle, Iowa.
H. P. Newman and wife, Chicago.
E. F. Ingals, Chicago.
F. B. Turck, Chicago.
W. J. Bridgman and wife.
M. B. Ward, Topeka, Kan.
Elmer Lee, Chicago.
C. E. Fawcett, Stewartville, Minn.
B. F. Uran, Kankakee, Ill.
B. F. Crummer, Omaha, Neb.
Charles M. Robertson and wife, Davenport, Iowa.
A. W. Campbell, Chicago.
H. R. Holmes, Portland, Ore.
Zan Cutter, Chicago.
W. R. Grady, Chicago.
W. F. Grinstead, Cairo, Ill.
R. C. Beatey, St. Louis.
A. L. Hummel, Philadelphia.
A. K. Kalme, St. Louis.
Walker C. Taylor, St. Louis.
B. T. Whitmore and wife, Chicago.
N. S. Kalme, St. Louis.
S. G. Gunt, Kansas City, Mo.
Jas. A. Lyon, Chicago.
G. W. Reynolds, Chicago.
F. J. Maxwell, Keokuk, Iowa.

His Ipse Dixit.

SAN FRANCISCO, CAL., April 25, 1895.

To the Editor:—As a member of the AMERICAN MEDICAL ASSOCIATION, I ask you to give space in the JOURNAL for the following:

1. The JOURNAL's scheme for ascertaining the therapeutic value of so-called "antitoxin diphtheria serum" is impossible of execution for the following reasons: *a*, it is impossible to identify the so-called Löffler bacillus diphthericus by any description now extant; *b*, it will require at least one year to complete the cycle of a scientific bacteriologic diagnosis of any case of diphtheria—admitting that the disease may be due to a bacillus capable of identification, which has not been done thus far; *c*, statistics unsupported by a scientific bacteriologic diagnosis, including post-mortem examination, are unreliable, inasmuch as the serum-therapy is based entirely upon the factum that diphtheria is caused by the so-called Löffler bacillus diphthericus.

2. In a paper read by me on the 16th inst., before the State Medical Society of California, entitled, "The Status Presens of Antitoxic Blood-Serum," I have shown by an abundance of scientific data and statistics: *a*, that antitoxin blood-serum antedates Behring as a therapeutic agent; *b*, that the so-called Löffler bacillus is not the cause of true Bretenneau diphtheria; *c*, that antitoxin blood-serums bear no relation to the causes operating in infectious diseases; *d*, that it does not insure immunity; *e*, that it does not cure; *f*, that it causes chemic decomposition of the blood and is a dangerous remedy; *g*, that it increased the mortality in diphtheria in Berlin during the year 1894 about 25 per cent.

Respectfully submitted,

CHAS. G. KUHLMAN, M.D.

935 Market Street.

BOOK NOTICES.

The History of the Pennsylvania Hospital 1751-1895. By THOMAS G. MORTON, M.D., assisted by FRANK WOODBURY, M.D. 4 to., cl., gilt top, uncut edges, pp. 574. Philadelphia: Times Printing House. 1895.

The late President Hays, in one of his innumerable addresses, pointed out the necessity of compiling county, mu-

nicipal and special histories now, while in the greater part of the country, there were living persons who knew the beginning; that in a few years owing to the restless and migratory habits of the people, even the traditions of the first planting would be absent. History can not be written by contemporaries; it must be written by those living outside and beyond the influence of the personal animosity or friendship which formed the motive for the recorded deed, and these local "histories" commended by President Hays, afford the best possible data for the after-coming historian.

Fortunately, the history of the Pennsylvania Hospital rests on documentary evidence, and we have it here, spread before us in the highest style of art of the photographer and lithographer; an art by which the old documents are preserved, yellow with the century and a half that has passed over them, and wrinkled as they appear in this year of our Lord 1895. Pictures of the old worthies as they appeared in their day are republished, among others a half tone from the identical engraving from which was taken the picture of Benj. Rush that we reproduced last week. It is true that Americans have no old ruined castles to point out to the visitor, but we can do better; we may point to some of our great charitable institutions, after a century and a half of usefulness not only showing neither weakness nor old age, but young, fresh and bright, greeting the twentieth century with kindliness, and perennial vigor; and those fortunate enough to have a copy of this report, may appropriately say: "Well done! Pennsylvania Hospital."

Personal Reminiscences and Recollections of Forty-six Years' Membership in the Medical Society of the District of Columbia, and residence in this city; with Biographical Sketches of many of the Deceased Members. By SAMUEL C. BUSEY, M.D., LL.D. Cl., 8vo., pp. 373. Washington, D. C. 1895.

Dr. Busey has long been known as one of Washington's literary physicians; a fluent writer, and an eloquent speaker. His long identification with the medical work of the District, and his extensive acquaintance, enable him to speak on these topics with *ex-cathedra* utterance. His reminiscences of early life in Washington are interesting, not only to those whose lot is cast in the Capital City, but as well to young practitioners everywhere. His account is sometimes amusing:

"The prescribed fee for each visit was one dollar. Many times the bill was settled with a fraction, and often a small fraction of the amount, in fact the beginner took whatever he could get, and was glad to receive such portion, however large or small the bill might be."

Those who now see the beautiful city with the decorative effects that forty years fostering care by Congress has created, can scarcely realize what Washington was in the days of young Busey's advent, as amusingly set forth in this book. The account of his student life as a private pupil of Professor Geo. B. Wood, is a pleasing bit of medical history.

A System of Surgery; by American Authors. Edited by FREDERIC S. DENNIS, M.D., Professor of the Principles and Practice of Surgery, Bellevue Hospital Medical College, New York; President of the American Surgical Association, etc.; assisted by JOHN S. BILLINGS, M.D., LL.D., D. C. L., Deputy Surgeon-General, U. S. A. To be completed in four imperial octavo volumes, containing about 900 pages, each with index. Illustrated with figures in colors and in black. Volume I, 870 pages, 422 engravings and 2 colored plates. Price per volume: $6 in cloth; $7 in leather; $8.50 in half morocco, gilt back and top. Philadelphia: Lea Brothers & Co. 1895.

There are forty-six contributors "named in the list," of whom twelve have contributed to this volume. The book appropriately opens with a condensed history of Surgery by Dr. John S. Billings. The assignment of this portion of the work to one who has the great Army library at his command is appropriate. We notice an inaccuracy in the five-line notice of the late Frank Hastings Hamilton, of New York. In the parenthesis the figures "(1813-66)" should be 1813-86, if, as is apparent, the year of the birth and death is meant by the figures. The last twenty years of the distinguished surgeon's life were by no means the least important. The chapter on Surgical Pathology, by Dr. W. T. Councilman, is the most satisfactory one hundred pages on this subject with which we are acquainted, and especially when taken in connection with the magnificent chapter by Professor W. H. Welch on the General Bacteriology of Surgical Infections. The chapters on Gunshot Wounds, by Dr. P. S. Conner; Fractures and Dislocations by Dr. Dennis; on Traumatic Fever, Erysipelas and Tetanus by Dr. J. Collins Warren and on Operative Surgery by Dr. Stephen Smith are noteworthy contributions. We have no hesitation in assigning this book to the first rank among the books of its class.

The weak point in most American works on surgery, judged by the European standard, has usually been the pathology, but no more competent hands than these could have been found in America, and we are proud to offer in this work a specimen of the quality of our new school of American Pathology, as promulgated by Welch, Councilman and Warren.

The mechanical execution of the book is worthy of the great publishing house that has issued it.

NECROLOGY.

R. L. LUCKETT, M.D., of Boyce, La., died April 25 at his plantation near that town. After studying at Yale College, he took his medical degree at the New Orleans School of Medicine (now extinct), in 1860. He entered the Confederate ranks as private, but was promoted to surgeon's duty on the staffs of Generals Polk and Bragg. He was United States Marshal in 1894. He was in the lower house of his State Legislature from 1874 to 1879, and in the Senate for four years later.

EDWARD SHIPPEN, M.D., of Philadelphia, died April 23, aged 68 years. He was a native of that city and a graduate from the University of Pennsylvania, in the class of 1848. In the late war he was surgeon of the Artillery Reserves of his State and from 1861 to the end of the war, most of the time being with the Army of the Potomac. He was lineally descended from the senior Dr. William Shippen, who was one of the founders of the Pennsylvania Hospital, of the school that afterward became the University, and a trustee of the first medical college, and for thirty years a trustee of Princeton College.

MR. JOHN BIRD, of London, a blind surgeon and author of many publications on the condition of the blind, died late in April at the age of 84 years. He was preëminent in the profession for the efforts put forth for the amelioration of the lot of his fellow-sufferers. He became a member of the Royal College of Surgeons, England, and a Licentiate of the Apothecaries' Society in 1834, after pursuing his medical studies at St. Bartholomew's. Mr. Bird was the author of "Observations on the Neglected Condition of the Blind in England," the publication of which he followed by a "Lecture on the Capabilities, Rights, and Treatment of the Blind," and a "Letter on the Duty of Superseding the System of Exile Education of the Deaf and Dumb, as well as of the Blind, by Social Education, as recently established in the Communal Schools of Paris." This was published in 1856, and the same year he also wrote a biography of the blind James Wilson, and at other times contributed articles on social pathology and the needs of the deaf and dumb.

ARTHUR R. OPPENHEIMER, M.D., of Baltimore, Md., April 29, aged 22. He was first assistant resident physician of the Johns Hopkins Hospital.——Charles Ottilie, M.D., of La Crosse, Wis., April 30, aged 64.——Joseph Rowland, M.D., of Media, Pa., April 29, aged 82.——Elsie F. Anderson, M.D., of Valparaiso, Ind., April 29——Thomas Seaton, M.D., of Bolivar, Pa., April 29, aged 82.——Spencer Byrne, M.D., of Marengo, Ind., April 28.

PUBLIC HEALTH.

Free Public Baths.—The New York Legislature has enacted a law making it mandatory upon cities of that State having populations of over 50,000 inhabitants to establish free public baths, and authorizing cities with less than 50,000 inhabitants to raise money for a like purpose. Cleanliness, says the Hindu, is the key to heaven.

Bacteriologic Laboratory for Paris.—M. Dubois, on behalf of a special committee of the Municipal Council of Paris, presents a report advising the creation of a special laboratory for the bacteriologic examination of diphtheria. The committee is of opinion that there is urgent need of installing an official laboratory for gratuitous examination of microscopic preparations and cultures. Apart from the Pasteur Institute, which desires to be confined to its own sphere, the committee thinks there is no laboratory better qualified for this work than that of the microscopic and bacteriologic laboratory of Paris directed by Miguel. The Council voted an appropriation of 10,000 francs for this purpose.[1]

Poisonous Dried Apples.—United States Consular Agent Krauss at Zittau in Germany, reports to the Department of State that American evaporated apples offered for sale there have been submitted to a chemic analysis and found to contain oxid of zinc. The investigation was made at the instance of the police department, and samples were taken from three grocers. At the request of one of the merchants a chemist made an analysis of some of the apples, and certified that the quantity of zinc salt contained in a very large portion of apple jam made from the apples in question could convey into the human system about one-fifth as much zinc as may be given to infants without causing nausea. No case could be found, however, where the fruit had caused illness.

The Hunger of the World.—Mr. E. G. Ravenstein, the eminent English geographer and statistician, has made some calculations to find when the earth will be unable to find nourishment for its population and they will be forced to cannibalism or starvation. According to him when the number exceeds 5,994,000,000, or in round numbers, 6,000,000,000, this emergency will arise, and Mr. Ravenstein believes the population of the globe will reach this figure in 284 years more. He points out that the average decimal increase is 8 per cent., divided as follows: Europe, 8.7 per cent.; Asia, 6 per cent.; Africa, 10 per cent.; Australia and Oceanica, 30 per cent.; North America, 22 per cent.; South America, 15 per cent.

Barbarism of Ignorance.—A few weeks since a quarantine guard at Shawneetown, Ill., shot a citizen who was attempting to escape from a smallpox quarantine. On the 4th inst. a "pest-house riot" broke out at Winchester, Ky., where a colored prisoner in the county jail has smallpox. A building, erected five miles from the town for his reception, was burned down during the night, and the farmers armed with rifles are guarding the roads in anticipation that the smallpox prisoner may be taken through their neighborhood to some obscure locality. Meanwhile the sheriff, whose residence is in the jail, has his smallpox prisoner on his hands and can not get him out of town. The barbarities of shotgun quarantines are the results of ignorance and superstition—foster-parents of cruelty.

[1] Le Progres Medical.

Smallpox in Indiana and Ohio.—Dr. C. N. Metcalf, Secretary of the Indiana State Board of Health, reports to the JOURNAL, under date of May 7, 1 case of smallpox at Terre Haute, 1 death; 2 cases at Evansville; 1 case at Indianapolis and 1 death at Tell City. Dr. Metcalf adds that the persons sick are all colored and the origin of the disease is not known.

Under the same date Dr. C. O. Probst, Secretary of the Ohio State Board, reports in Cincinnati 24 cases and 7 deaths, making in all 89 cases and 17 deaths; all cases have been taken to the Branch Hospital; 54 of the cases occurred in one square on the river front; all the inhabitants of this square have been vaccinated. In Cleveland 8 cases have been reported; the first cases were operatives in a woolen mill, and the origin of the disease is supposed to be infected rags; all of the cases have been removed to the Infectious Disease Hospital. No other cases reported in the State.

Rewards of Early Rising.—Aside from the helminthous property ascribed to the early bird by the adage, a recent newspaper writer implies that if one would become a healthy and well-preserved monarch all that is necessary is to acquire the habit of early rising. In support of his theory he cites the Emperor Francis Joseph of Austria, who invariably retires to rest at 9 and is up at 5—sometimes even at 4—in the morning and who is "athletic, elastic and youthfully active." King Humbert of Italy, likewise remarkably well-preserved, is also up with the lark and has taken his first breakfast long before the majority of his subjects are out of bed. Among the early risers Emperor William, the Queen Regent of Spain, King Charles of Roumania, King Oscar of Sweden, King Leopold of Belgium—indeed, says this writer, "it only requires a passing glance at the various thrones of Europe to show that those monarchs most healthy and well-preserved for their years are precisely those who, according to the new-fangled doctrine of the medical authorities, ought to be the ones most physically decrepit." The moral of which has been already pointed out: Get up early if you would be a healthy and well-preserved monarch.

Effective Disinfection.—Under the Sanitary Act of 1891 the sanitary authorities of London are bound to provide temporary shelter free of charge to all persons who are compelled to leave their dwellings for the purpose of enabling such dwellings to be disinfected. To what extent this obviously necessary measure is complied with is not definitely known, but the American reader will infer that like many other well-intended sanitary requirements it is more frequently honored in the breach than in the observance. Dr. Anthony Roche in a letter to the *Irish Times* calls attention to the London requirement with a view to securing its adoption in Dublin, whereupon the *Medical Press* says: "The requirement is but little known in the metropolis." As Dr. Roche points out, it is useless to disinfect infected premises if the occupants whose clothing is saturated with infection, are allowed to wander about the streets or carry the infection into neighboring premises.

Influenza as a Factor of Increased Death Rates.—The returns of deaths from influenza during the recent prevalence of this disease bear no relation to its actual influence on the mortality of the period. A very large percentage of the deaths from pneumonia, bronchitis, heart disease and kidney disease should be charged up to this insidious and protean malady. In a recent clinical lecture[1] Dr. James Tyson said: "Another serious danger of influenza is its tendency to con-

[1] University Medical Magazine.

vert harmless, often latent, disease into serious disease. I especially refer to kidney and heart disease. One of the results of the more recent practice by the life-insurance companies, in examining the urine of all persons seeking insurance, is the discovery that albuminuria is present in many persons who are quite free from other symptoms—a condition not serious in itself. If such a man gets influenza, however, his mild albuminuria will sometimes become a serious one. The same is true of heart disease. A murmur unattended with other symptoms may, after an attack of influenza, become associated with other symptoms and assume a serious import."

The Typhoid Milk Can.—The recent distressing outbreak of typhoid fever in Stamford, Conn., traced unmistakably to the milk supply of one dealer, has awakened renewed interest in the question of the sanitary control of dairies and milk distribution. Dr. Welply, of Belfast, Ireland, has just issued a timely monograph on the subject—"Creameries and Infectious Diseases." He deals at some length with an outbreak of typhoid under his own observation in which the origin of the epidemic was traced beyond a doubt to the consumption of "separated milk" distributed from a creamery in the neighborhood. "Separated milk" is the skim milk left after the cream has been removed, to which is then added enough fresh milk to bring it just within the legal standard, and it is then sold as new milk in the large towns. As the creamery receives the milk from several dairies, one infected supply may pollute the product of all the others contributed to the same creamery, and in this way a single case of rural typhoid may become almost infinitely multiplied. Dr. Welply traced up such an infected dairy as the cause of the outbreak, and then goes on to show how minute a quantity of the morbific matter is capable of wellnigh indefinite multiplication in such an ideal culture medium as milk. He found in his examination that the cows in this dairy were milked by a person whose hands had been soiled by typhoid dejecta and that some of the dairy maids acted also as nurses to the sick. Among other practical points he refers to the fact that few cows can be thoroughly milked unless the hand and the teat be kept moist, to which end the majority of milkers wet both surfaces with the first portion of milk that is drawn. Dr. Welply advocates two principal measures of prevention—first, thorough and frequent dairy inspection by competent and independent inspectors; and secondly, compulsory notification of all cases of illness occurring in dairies which send milk to creameries.

Health Reports.—Sanitary reports to the Supervising Surgeon-General, Marine-Hospital Service.

SMALLPOX—FOREIGN.

Argentine Republic: Buenos Ayres, month of February, 10 deaths.

Austria: Buda-Pesth, April 1 to 8, 3 cases.

Bohemia: Prague, April 6 to 13, 3 cases.

Brazil: Rio de Janeiro, March 23 to 30, 3 deaths.

Egypt; Alexandria, March 19 to 25, 4 cases, 1 death; Cairo, 3 cases, 3 deaths.

England: South Shields, April 13 to 20, 6 cases; Birmingham, April 6 to 13, 1 case, 1 death; Liverpool, April 6 to 13, 1 case—April 13 to 20, 5 cases, 1 death; London, April 13 to 20, 4 cases; Manchester, April 13 to 20, 1 case.

Holland: Amsterdam, April 13 to 20, 1 death; Rotterdam, April 13 to 20, 5 cases, 2 deaths.

India: Calcutta, March 16 to 23, 233 deaths.

Ireland: Dublin, April 6 to 13, 10 cases, 2 deaths—April 13 to 20, 8 cases—for three months ended March 30, 642 cases, 81 deaths.

Scotland: Edinburgh, April 1 to 6, 7 cases, 1 death—April 6 to 13, 3 cases—April 13 to 20, 2 cases 1 death; Glasgow, April 13 to 20, 8 deaths.

Russia: Batoum, April 3 to 10, 8 cases, 1 death; Moscow, April 1 to 6, 2 cases, 2 deaths; Odessa, April 1 to 13, 1 case; Warsaw, April 1 to 6, 1 death; St. Petersburg, April 6 to 13, 1 death.

West Indies: San Juan de Porto Rico, April 3 to 10, 1 death—April 10 to 17, 1 death.

SMALLPOX—UNITED STATES.

Arizona: Nogales, May 2, 39 cases.

Florida: Key West, May 4, 1 case.

Indiana: Evansville, April 30, 2 cases.

Michigan: Smallpox reported at Detroit and Brownstown Township, during week of April 20 to 27.

Mississippi: Vicksburg, May 1, 2 cases.

New Hampshire: Claremont, April 20 to May 3, 11 cases; Croydon, 7 cases; Newport, 1 case.

New Jersey: Hoboken, April 20 to 27, 2 cases.

Ohio: Cincinnati, April 27 to May 4, 11 cases, 1 death.

Pennsylvania: Philadelphia, April 20 to 27, 10 cases.

West Virginia: Wheeling, March 25 to May 3, 12 cases, 1 death.

YELLOW FEVER—FOREIGN.

Brazil: Rio de Janeiro, March 23 to 30, 20 deaths; Santos, March 23 to 30, 108 cases, 87 deaths.

Cuba: Havana, April 18 to 25, 3 cases, 1 death; Santiago de Cuba, April 1 to 28, 10 deaths.

CHOLERA—FOREIGN.

Argentine: Buenos Ayres, February 1 to 28, 45 deaths.

India: Madras, March 23 to 30, 1 death; Calcutta, March 16 to 23, 103 deaths.

Arabia: Camaran quarantine station. Cholera was brought to the station by the S.S. *Mohamedi* and the S.S. *Yubeda*. March 23 to 30, 48 cases, 13 deaths.

SELECTIONS.

Surgical Tuberculosis.—Isnardi (Turin, 1894,) reports success in the use of oil of turpentine. He uses this partly as an ointment with vaselin, equal parts, in affections of the skin, partly undiluted as an injection into fistulas or abscesses. Fistulas are first curetted, and abscesses are aspirated. Very intense inflammation follows with rise of temperature to 40 degrees C., but with no severe general symptoms. In four to six days abscesses are to be incised, packed with sterilized gauze containing the turpentine ointment. The results, as detailed by the writer in eighteen cases in children were most promising.—*Centralblatt fur Chirurgie.*

Treatment of Leukoplakia.—L. Leistikow, in *Monatsheft fur praktische Dermatologie*, 1894, No. 3. Leukoplakia of the mouth is generally very hard to influence therapeutically; for this reason every new remedy meets with ready trial. The success which the writer had with patients who had had syphilis, but in whom specific remedies proved useless, was worthy of note. Several times a day especially after meals and at bedtime, the following paste was applied with a swab: terræ silicææ, 1.5, resorcini 3., adipis 0.5. After eight to fourteen days a shriveling was noticed; then the slightly inflamed mucous membrane was brought to a normal condition best by balsam of Peru. The accompanying hyperplasia of the lower lip was also diminished, but eventually the cauterization had to be repeated two or three times.—*Centralblatt fur Chirurgie.*

Hydatid Fremitus and Resonance.—(*Policlinico*, 1894, No. 11) Santini drew the attention of the Academy of Sienna to the fact that a deep sonorous tone is heard on percussing an echinococcus cyst, if at the same time one listens with the stethoscope. Ravogli proved this statement on one living subject and also on the extirpated cyst, afterward also experimentally on India rubber bladders. He therefore arrives at the following conclusions: echinococcus cysts yield not only the feeling of the so-called hydatid fremitus on palpation and percussion, but also to coincident auscultation a characteristic tone, the hydatid resonance. To find these signs often requires no little pains. Failure is quite possible if the cyst wall is very thick or has degenerated, if the contents are more or less thick, and finally, if the cyst lies too deep and is covered with thick layers of tissue. The best method of examination is to place the left hand firmly

on the tumor and to percuss the terminal phalanges with the middle finger of the right hand. The hydatid resonance is more easily found than the fremitus, and may be recognized in cases in which the latter symptom is missed.

In ovarian cysts containing thin fluid, hepatic abscesses, etc., neither of these symptoms was ever found. Elasticity and extensibility of the cyst wall, and clear contents are necessary for their production.—*Centralblatt fur innere Medicin.*

Ether for Anesthesia in Munich.—(P. Ziegler, *Munchener med. Wochenschrift*, 1894, No XXIII.) Ether has been used at the surgical clinic in Munich since May 1, 1893. The experience in 600 cases is now made public. . . . In conclusion, the unpleasant sensation of suffocation at the beginning, the cyanosis, the excessive secretion of mucus and saliva, the tardy relaxation so common in alcoholics, the frequent partial return to consciousness when the cone is removed, are annoying, but can be obviated by greater experience. Over against these is the diminished danger, since cardiac syncope is not primary, but secondary to respiratory syncope, which can be more easily overcome. Ether is not recommended for operations on the face, and is directly contraindicated in all diseases of the air passages, including compression of the trachea. He declares himself in favor of the use of ether, and the latest statistics justify him, for 1 death has resulted in 1,900 cases of chloroform anesthesia, while with ether, 1 death in 26,000 cases.—*Centralblatt für Gynäkologie.*

Heteromorphism of Bacteria under the Influence of Lithium Salts.—Herbst, in the domain of zoology, by the addition of lithium and potassium salts to sea water, saw the eggs of the sea-urchin (*Echinus microtuberculosus*) assume a different, hitherto unknown formation; reasoning by analogy, Gamaleia (*Wratsch*, 1894, Nos. 19 and 20) tried the effect of lithium on various bacteria and recorded a series of altered forms resulting.

Twenty-four hours after the addition of .5 to 1 per cent lithium chlorid to a cholera bouillon culture or 1 to 2 per cent to a cholera agar culture: 1, giant spirilla were seen, having considerable length and breadth, unequal thickness and distinctly corkscrew-like cells; 2, further, especially if the percentage of the lithium salts be increased, spherical or amœboid cells. The spherical forms were in general easily stained, wholly or only in part, by alkalin anilin dyes; often the contents of these forms were finely grained with crystalline luster or pierced by lines or rods. A third and less common form displayed very fine filaments, which, if pressed more firmly together, formed a fine felt-like tissue. Here and there the impression is given that these filaments are offshoots from the thick spirilla.

In contra-distinction to the involution forms which arise in decaying colonies, Gamaleia calls this transformation, heteromorphism, a term introduced by himself, since the forms he describes are found in fresh cultures and there is no appearance of degeneration, as is manifest from the imperfection of the heteromorphous forms, from their quantitative preponderance over the number of normal bacteria in the preparation, further from their larger size, their ease in staining and from the absence of the fine-grained, coccus-like destruction, characteristic of old cultures. Besides, the term, heteromorphism, is least prejudicial to the question as to the retrospective or prospective character of the forms.

Typhus bacilli showed after the addition of lithium chlorid to cultures exactly the same three types of changed forms. Other forms of bacteria, as milzbrand and diphtheria, showed no tendency to heteromorphism, nor was there any such manifestation, if sodium, potassium, caesium or rubidium were added to cholera or typhus cultures. As to the viability of the heteromorphous bacteria, it is to be noted that the giant forms have vital energy and retain their characteristics after inoculation on common gelatin. The viability of the other forms seems undecided. But, on the other hand, bacteria may acquire a certain indifference to the action of lithium, for successive inoculations on nutrient media containing the same proportion of lithium lead to a decline and disappearance of the heteromorphism.—*Centralblatt für innere Medicin.*

MISCELLANY.

Addresses at the Forty-seventh Annual Meeting.—(By telegraph to the JOURNAL).—The addresses at the Forty-seventh Annual Meeting of the AMERICAN MEDICAL ASSOCIATION will be delivered by Nicholas Senn, M.D., Chicago, on Surgery; William Osler, M.D., Baltimore, on Medicine; George H. Rohé, M.D., Baltimore, on State Medicine.

St. Francis Hospital, New York.—Under the will of the late Mansay P. Dodin, the sum of $1,000 was recently made over to the Sisters of the Poor who conduct the hospital above named.

The Willard State Hospital for the Insane, New York.—A destructive fire, without loss of life, broke out at this institution on the 28th ultimo, and consumed property valued at $150,000. The entire institution was in danger at one time, and all the patients were gotten ready to vacate.

Reduction in the Price of Antitoxin.—The New York City Board of Health has recently reduced the cost of the serum produced by its Bacteriologic Bureau, as follows: "First quality, from $1.25 to 75 cents; second quality, $2.50 to $1.50; third quality, $4 to $3." The Board will continue to supply charitable institutions and poor patients free.

An Accumulative Doctor.—A Socialist member of the Belgian Parliament receives $700 per annum as physician to the lock hospital, $320 as physician to other hospitals, beside $200 for his services in the custom house. Add to this $800 for his parliamentary services, and the *Gazette Medicale de Liege* thinks the doctor should contrive to live on his practice.

Dr. Max Simon Nordau, the author of "Degeneration," is a medically educated man. He was born at Buda-Pesth in 1849, took his medical degree in 1873, traveled and studied medicine for five years, at the end of which time he made his permanent home in Paris. He became a correspondent of the *Frankurter Zeitung* and other German journals, also contributing social and political writings to various French reviews, some of which attracted marked notice.

Dr. A. Conan Doyle, whose books have had a great circulation in this country, came hither last winter to deliver lectures. From certain comments in the papers it would appear that the rewards of this visit were not such as to lead to its repetition. In fact, in the *World*, Dr. Doyle has stated that he does not care to visit America again in the winter season, for the reason that our "railroad cars are kept too hot." The *World* suggests that really he found that his audiences were too cool for him.

David S. Ingalls.—The late David S. Ingalls, of Springville, New York, left an estate valued at over $600,000, the most of which was bequeathed to charitable institutions. The will was hotly contested by two surviving sisters and a niece. One of the sisters was alleged to be of unsound mind. The contest has been "on" since early in 1893. The hospitals and other charitable legatees will receive about two-thirds of the estate, the contesting relations and counsel will get one-third, nearly.

Wound of the Bladder During Vaginal Hysterectomy.—Jacobs reports that after incising the vaginal mucous membrane in the anterior cul-de-sac, which would allow him to place the utero-vaginal sutures, he proceeded with the finger to detach the cellular tissue separating the supra-vaginal portion of the cervix from the bladder, when suddenly and without any warning the index disappeared in the bladder. The author sutured the viscus at once and found then that the muscular fibers of the vesical wall only existed in patches, consequently the suturing was very laborious but

it was finally accomplished with fine catgut in two stages. Owing to this accident the vaginal method was abandoned; ten days later, the fistula having closed, abdominal hysterectomy was performed with recovery.[1]

Iodid of Potash in Actinomycosis.—Berard has collected all the cases of actinomycosis in which iodid of potash has been used. This treatment has brought about recovery in about 95 per cent. The iodid of potash may then be considered as a specific for this affection. What is the mode of action of the medicament? The experiments of Berard show that the actinomyces grow readily in cultures to which iodin has been added. It seems probable, then, that the iodid of potash acts especially on the anatomic elements.[2]

Treatment of Nasal Hypertrophy.—At a recent meeting of the Paris Academy of Medicine, Lucas-Championniere showed a patient affected with nasal hypertrophy from acne. Ollier's method—decortication by the thermo-cautery without autoplasty and with a simple, weak antiseptic dressing—had given a very good result. The only difficulty is not to clog the nostrils and to touch the septum as little as possible during the decortication. Marc See stated that, instead of decorticating all the nose, he leaves strips of skin between the cauterized areas; his method, which he has used for fifteen years, may be done without chloroform. In replying, Championniere maintained that in cases as complex as the one he presented, total decortication is preferable; it gives a more complete and especially a much more rapid result.[3]

Contra-indicated During Pregnancy.—Huguenin mentions as chief of the remedies which are dangerous to the pregnant woman, salicylate of soda and ergot. Purgatives—castor oil, mineral salts and especially aloes—should be avoided. Oxalic acid and its salts—oxalate of potash, etc.—may prove dangerous. Antipyrin frequently taken inhibits the lacteal secretion; cocain locally applied for fissured nipples has the same effect, and should be proscribed for nursing women. As to operative measures, they are not absolutely contra-indicated; we may, for example, extirpate a peri-uterine tumor, the development of which hinders pregnancy, provided the operation is speedy and little blood lost. It is better to wait until the fourth or fifth month before operating. Operations in the vagina or uterus, no matter how minor, should be avoided in order to avoid suspicions of abortion in the patient's mind.[4]

Action of the Nervous System on the Lymphatics.—The study of the innervation of lymphatic vessels presents great difficulties and our knowledge of the subject is confined to some vague and incomplete notions. MM. Camus and Gley have tried to fill this gap by a series of ingenious and demonstrative experiments. These physiologists have been able to register the movements of the receptaculum chyli and the thoracic duct in the dog. By exciting the trunk of the left splanchnic nerve or the thoracic sympathetic they cause, according to conditions, dilatation and contraction of the receptaculum and duct. Hence there are in the same nerve trunk constrictor and dilator fibers for the same vessel, but the latter predominate. This contractility of the lymphatics under the influence of the nervous system plays a considerable rôle in the lymph circulation. The alternate movements of dilatation and contraction are somewhat important in certain cases, for they may be compared to the lymph hearts of certain lower vertebrates. These experiments also show that local circulations may be produced in the lymph vessels as in the blood vessels.[5]

Professor Huebner of Berlin on Antitoxin.—The address, before the Thirteenth Congress for Medicine, at Munich early in April, by Professor Huebner, touches upon the present treatment of diphtheria at the Berlin hospitals. He holds that the statistics there show a marked reduction in the rate of mortality by that disease since the introduction of the use of the serum. He notices that the tendency of the membrane to spread to new localities is reduced. Out of 181 cases there was such spread in only 16 cases. A spread of the disease to the larynx was not observed; in 19 per cent. exanthems were produced; in a few cases fever followed the injections, and in fewer yet there was pain in the joints. The latter was transient and produced no injury to the system. The immunizing property of the serum was not of long duration. The concluding paragraphs of this address are interesting, as given below from the *Medical Press*, for April 24: "He had never believed a remedy would have such a great influence, such an immediate action; he had never believed himself so much indebted to a physician as to the discoverer of diphtheria curative serum. With confidence, he concluded, we could proceed to the building up of our experience, with good conscience we could call out to every colleague: "Prove for thyself and prove as often as thou canst, enough of the noble metal is here. How high its carat, to determine that requires the inexorable scales of time. Art, however, has the time, for it is long."

Hydatid Cysts of the Lung.—Behr insists on the great importance of the question of infection or non-infection which governs at the same time the evolution and the pathologic anatomy of cysts of the lung. In the latter case the hydatid is an aseptic foreign body which only reveals its presence by symptoms of compression. In the former it is not long tolerated by the tissues and numerous complications ensue. As regards the penetration of the six-hooked embryo the generally accepted opinion is that it is transported by the veins through the hepatic filter to the right ventricle and thence into the pulmonary capillaries. The dimensions of the embryo of the hepatic capillaries render this opinion probable. Nevertheless the invasion by the air passages seems none the less probable and is admitted, especially in Australia where hydatids of the lungs are relatively frequent. The eggs of the tænia may very easily become mixed with dust and be thus inspired. Diagnosis is very difficult, because there are no pathognomonic symptoms and often the small cysts are only discovered at the necropsy. The most constant sign is dyspnea and its intensity depends on the volume and situation of the tumor and the patient's respiratory capacity. Cysts in the upper part of the lungs seem to give rise to more intense dyspnea than those at the base, even if of the same size. Pain is the second important symptom for "hydatids of the chest are often more painful than those of any other region." The pain is acute, persistent, with exacerbations and may radiate far beyond the part affected.[1]

Therapeutic Applications of Anemonin.—Anemonin has been extolled in the treatment of bronchial catarrh, in convulsive coughs and in asthma. The dose is from 2 to 4 centigrams daily in capsules or alcoholic solution. Larger doses cause cephalalgia and a feeling of weight in the extremities. In amenorrhea and dysmenorrhea Bovet has used it in doses of 5 to 10 centigrams daily—but never to exceed 20. According to this author it is the analgesic *par excellence* for uterine disorders. It is easily decomposed in the intestine, however, so its action is uncertain. *Anemone pulsatilla*, in the form of tincture, was highly extolled in 1882 by Schapter for reflex eclampsia, palpitations, ephemeral febrile conditions following violent emotions or fatigue, hay fever—in short, in all neuroses of sympathetic origin. For these he prescribed 20 to 100 drops of the tincture in increasing doses. E. Martel advises the treatment of acute orchitis by tincture of anemone—20 drops daily in divided doses. Martel says that by its use the pain is much diminished and that it has a tendency

[1] These de Paris.
[2] Le Progres Medical.
[3] Arch. de Tocol. et de Gynecol.
[4] Le Progres Medical.
[5] Arch. de Gynecol.

[1] These de Paris.

to resolve the inflammatory process. Anemonin, extracted from the above plant and studied by Bronvsky in 1886, is very toxic. Two grams injected under the skin of dogs caused death in twenty-four to thirty-six hours after increasing dyspnea, slowing of the heart, torpor and paralysis. Death seemed due to cardiac paralysis. Bronvsky has used anemonin with success in bronchial catarrh, asthma and convulsive coughs. He gives 5 to 10 centigrams daily in the form of powder in two doses.[1]

Before or After?—How many physicians direct the time of taking medicine on well-defined chemico-physiologic principles? The *Medical and Surgical Reporter* has attempted to furnish such principles in the following: Iodin and iodids should be given on an empty stomach, when they rapidly diffuse into the blood; if given during digestion the acids and starch alter and weaken the action. Acids, as a rule, should be given between the digestive acts, because the mucous membrane of the stomach is then in a favorable condition for the diffusion of acids into the blood. Acids may be given before food when prescribed to check the excessive formation of the acids of the gastric juice. By giving it before meals you check the osmosis stomach-ward of the acid-forming materials. Irritating and dangerous drugs,—such as salts of arsenic, copper, zinc, and iron—should be given directly after food, except where local conditions require their administration in small doses before food. Oxid and nitrate of silver should be given after the process of digestion is ended; if given during digestion, chemic reactions destroy or impair their special attributes and defeat the object for which they were prescribed. Metallic salts, especially corrosive sublimate and also tannin and pure alcohol, impair the digestive power of the active principle of the gastric juice, so should appear in the stomach during its period of inactivity. Malt extracts, cod-liver oil, phosphates, etc., should be given with or directly after food, so that they may enter the blood with the products of digestion.

Hospital Notes.

ST. CLAIR STREET HOSPITAL.—At a meeting of the St. Clair Street Hospital trustees held in Cleveland, Ohio, April 21, it was decided to proceed at once with the erection of the proposed hospital annex; estimated cost $2,500.——St. Luke's Hospital at Davenport, Iowa, was formally opened April 30——The Lamar Hospital, at Augusta, Ga., has been formally opened.——A movement is on foot to establish a public hospital at Tiffin, Ohio.——Plans have been made for the enlargement of St. Bernard's Hospital at Council Bluffs, Iowa. The probable cost of the addition will be $40,000.——The corner stone of the Vermilion County Hospital, Illinois, was laid May 11. Many secret societies participated in the event.——The managers of the Pennsylvania Hospital at their annual meeting held May 6, elected Dr. James C. Wilson to the medical staff as attending physician, in place of Dr. Morris Longstreth.——The new memorial surgical pavilions of the Pennsylvania Hospital were inspected by the contributors and managers and will shortly be utilized for patients, thus nearly doubling the capacity of the hospital.——The recently issued "History of the Pennsylvania Hospital," by Dr. Thos. G. Morton, assisted by Dr. Frank Woodbury, was presented to the contributors at this meeting and a formal vote of thanks therefor was passed unanimously.

Louisville Notes.

SMALLPOX.—Special Examiner Long reports from Princeton that there are sixteen cases at that place, with three exceptions all occurring in the persons of negroes. This prevalence has been due to the fact that the local authorities did not know that the law compelled all infected persons to be confined in the local pest-house,—and there has been a free communication between the cases and unvaccinated persons.

CITY HOSPITAL.—The four regular schools have furnished the Board of Public Safety with a list of physicians and surgeons who are to represent them upon the visiting and consulting staff for the coming year. It is stated that there will be no conflict between the two schools of medicine and everything seems to be adjusted satisfactorily.

DEATH REPORT.—The report for the past week shows a total of 62 deaths. Of these 4 were due to typhoid fever, 12 to pneumonia. There were 2 stillbirths. The report for the month of April shows a total of 366 deaths. There were 43 deaths from consumption, 4 from puerperal fever, 9 from typhoid fever, and 98 from pneumonia. There were 201 males and 165 females, 258 white, 108 colored. Sixteen deaths occurred at the City Hospital and one at the eruptive hospital from smallpox. The death rate for the month was only 1.5 per 1,000 of the white population and 3 per 1,000 among the colored people.

Good Roads.—Our country practitioners are so much interested in the subject of good roads that we give place to the following:

STATE ROADS IN MASSACHUSETTS.

For the past three years the press of the United States has so thoroughly discussed the different advantages of good roads, and so universally indorsed this reform, that all classes of our citizens appreciate the necessity of, and are anxious for, the immediate adoption of such laws as will hasten the construction of State highways. Massachusetts has from the outset taken the lead in this matter, and the spirit of her Legislature has been shown by making the Highway Commission a permanent one, and by appropriating $300,000 to be expended, under the immediate supervision of the Commission, in constructing new and rebuilding old roads. As a natural result of the popular agitation and the monster petition, which I had the honor to present to Congress in 1893, the United States recognized the necessity of a move in this direction, and under the "Agricultural Bill" made a special appropriation of $10,000 to meet the expense of a careful investigation into the condition of roads throughout the country, and for the publication of such information as would assist the people in bettering their highways. The Department of Agriculture has issued a number of bulletins, and it is gratifying to learn that more than a score of States have already passed new road laws, while nearly all the others are planning for the adoption of measures for the promotion of this reform. Experience has shown that the course pursued by Massachusetts is the one which commends itself most strongly, both to the people at large and to their legal representatives, the various State Legislatures, and it is natural to suppose that if all were familiar with the work here the knowledge would be utilized to bring about similar legislation wherever the method of procedure is still unsettled. For this reason I would call to your attention and urge upon you the advisability of enlightening your readers on the good work we have already accomplished. Starting in June, 1892, a Temporary Commission was appointed to examine into the condition of the roads, and to draft a bill providing for the improvement of the highways of the Commonwealth. The law suggested by the Commission was, with some changes, passed in June, 1893, but, before any petitions for construction of State highways were submitted to the General Court, an act was introduced and passed June 20, 1894, increasing the powers of the Commission, and permitting the selectmen of any town, or the mayor and aldermen of any city, as well as county commissioners, to petition the Highway Commission for taking roads as State highways. In place of submitting to the Legislature a separate bill for the construction of each road, it was voted that the appropriation be used by the Highway Commission, without further legislation, in building State highways. The $300,000 has been pretty evenly divided among fourteen counties. Before deciding which of the many petitions should be granted an official visit was paid to each locality, and full information as to the value of the proposed improvement collected. While this method has distributed the work in small sections of roads, thus increasing the expense per mile, the advantage to the people at large will be still greater, for the reason that each portion of the State highway constructed is intended to be an object lesson to those living near by.

[1] Les Nouveaux Remedes.

County commissioners and other officers will watch the work as it progresses, and follow out the same lines in building county and other roads which are not intended for State highways. The plan is to build, section by section, such roads as will connect the great centers of trade, and join with through roads in other States, so that both local and interstate communication will be benefited. Under date of January, 1895, the Massachusetts Highway Commission has rendered a report which covers the work of the past year, and this publication should be consulted by those who are considering legislation. The provisions of our law will permit contracts for the construction to be let to municipalities or to private corporations, but the former arrangement is preferred, as it is more effectual in teaching the people the art of road building, and protects the State against cheapening the work by the importation of foreign laborers, an element which is apt to be objectionable. A resident engineer is appointed by the Commission, and it is his duty to be in attendance, and keep a correct account of all items to be paid for by the State. Wherever the traffic was of sufficient proportions to warrant it the roads have been broadened. The advantage to owners derived from the construction of the way is, as a rule, so much greater than the injury to them by widening the road that, in a large majority of cases, the town officers have been able to procure releases without any cost. Thirty-eight sections have been contracted for, and only eight of them are to have a width of eighteen feet of hardened surface, all others being fifteen feet wide. As the primary object is to get length of way, the Commissioners are considering the advisability of building single-track roads in the thinly-settled districts. These would not be over nine feet wide, with here and there portions of double width as convenient passing points for carriages. A mile and a half of such roads can be built for less than the cost of a mile of fifteen feet width, and the advantage in getting produce to market is not lessened, provided such construction is confined to localities where the average traffic is from six to eight vehicles an hour. There is need of legislation to regulate the care of, and responsibility for, sidewalks on State highways. These being of purely local advantage should be under the supervision of the town, the wheelways alone being constructed and kept in order by the State. Progress has been made in the laboratory work on the road building stones of the State. Experiments of this kind are carried on at Harvard University in the Lawrence Scientific School, whose Dean, Prof. N. S. Shaler, is a member of the Highway Commission. The chief aim of these inquiries has been to determine the qualities which constitute fitness for road making. This will be of value to the Commission in enabling them to utilize the road material near at hand, and thus lessen the cost of construction. As this phase of the work progresses, maps are made showing the location of all deposits suitable for road building. A number of towns have already appropriated money to build their streets in the same careful manner as those constructed by the State, and others have purchased road machinery with the intention of extending the work on roads other than State highways. Careful consideration has been given to the plan of planting shade trees along the highways. With this end in view, experts have been consulted concerning the best varieties for the purpose, and the wayside trees have been examined, so as to determine the species well adapted to the climate and soil of Massachusetts. As the estimated expense of procuring and planting these trees is not less than $500,000, the Commission has rightly made this question secondary to road building, but in the meantime they are collecting such data as will enable them to work with profit on the adornment of the roads after the construction is well in hand. The American and English elms have the advantage of fairly rapid growth, with shade high above ground, and the leaves falling from them give but little obstruction to the gutters. They have the disadvantage of being subject to the attacks of insects, so that the cost of protecting them from these pests would be considerable. Maples grow well and are beautiful, though they often shade the road too much. It is the custom in parts of Europe to plant the roadsides with trees which yield profitable crops. In France and Germany, for example, cherry trees abound. In these countries the yield of the wayside trees belongs to the neighboring land owners, but in some cases to the community, and their product is well guarded by law. There will be more or less experimenting on the part of the Commission before they decide upon the species to be planted. The law provides for the beginning of this work in the spring of 1895, and from that time it will be carried on slowly, so as to give us the benefit of experience. Every State should make a beginning on road improvement. In thinly-settled regions of the country, where the people do not feel able to undertake much they can do no better than to start the reform by constructing sections of single-track roads. No community can afford to neglect the common roadways. Our prosperity is too intimately connected with the facilities for communication. I have spent many thousands of dollars in inaugurating and advancing this reform, and continue to take an active part in it, though for a long time I have not addressed you on the subject. The interest is now general, and the leaders numerous, consequently there is a demand for road news, more especially for the recent advancements in the line of actual experience. Here is what we have done in the old Bay State. Will you not publish it, or a portion of it, for the benefit of your readers, many of whom, without doubt, are directly or indirectly connected with, or interested in the development of the cause? Very truly yours,

Boston, Mass. ALBERT A. POPE.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from April 27, 1895, to May 3, 1895.

First Lieut. HENRY D. SNYDER, Asst. Surgeon U. S. A., is granted leave of absence for two months, to take effect upon the conclusion of his examination to determine his fitness for promotion.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending May 4, 1895.

P. A. Surgeon E. R. STITT, detached from U. S. S. "Chicago," and to Nicaragua Canal Board inspection of work on the Isthmus.

Surgeon H. G. BEYER, detached from Naval Academy, and to the "Monongahela."

P. A. Surgeon L. W. ATLEE, from the New York Hospital, and to the "Richmond."

P. A. Surgeon J. M. EDGAR, from the "Richmond," and to the school ship "Saratoga."

P. A. Surgeon V. C. B. MEANS, from the "Saratoga," and to the New York Hospital.

Asst. Surgeon ROBERT BOYD, from Philadelphia Hospital, and to the "Monongahela."

Asst. Surgeon LEWIS MORRIS, ordered to the Philadelphia Naval Hospital.

Marine-Hospital Changes. Official list of changes of stations and duties of medical officers of the U. S. Marine-Hospital Service, for the fifteen days ended April 30, 1895.

Surgeon C. S. D. FESSENDEN, detailed for duty on board for examination of officers, revenue cutter service, April 17, 1895.

Surgeon J. B. HAMILTON, granted leave of absence for twelve days, April 30, 1895.

Surgeon G. W. STONER, detailed to represent Service at meeting of AMERICAN MEDICAL ASSOCIATION, April 25, 1895.

Surgeon F. W. MEAD, detailed as chairman of board for physical examination of officers, revenue cutter service, April 17, 1895.

P. A. Surgeon C. BANKS, when relieved, to report at Bureau for duty as chief of purveying division, April 24, 1895. Granted leave of absence for fourteen days, April 29, 1895.

P. A. Surgeon L. L. WILLIAMS, detailed for duty on board for examination of officers, revenue cutter service, April 17, 1895.

P. A. Surgeon W. P. MCINTOSH, detailed for duty on board for examination of officers, revenue cutter service, April 17, 1895.

P. A. Surgeon J. J. KINYOUN, detailed to represent Service at meeting of AMERICAN MEDICAL ASSOCIATION, April 25, 1895.

P. A. Surgeon R. M. WOODWARD, to proceed to Ashtabula, Ohio, as inspector, April 19, 1895.

P. A. Surgeon C. P. WERTENBAKER, granted leave of absence for ten days, April 16, 1895.

P. A Surgeon B. W. BROWN, detailed as recorder of board for physical examination of officers, revenue cutter service, April 17, 1895. Granted leave of absence for twenty days, April 23, 1895.

Asst. Surgeon W. J. S. STEWART, to rejoin station at Washington, D. C., April 20, 1895.

Asst. Surgeon EMIL PROCHAZKA, to proceed to Evansville, Ind., for temporary duty, April 29, 1895.

Asst. Surgeon A. R. THOMAS, granted leave of absence for thirty days, April 19, 1895.

LETTERS RECEIVED.

Bovee J. Wesley, Washington, D. C.
Central College of Physicians and Surgeons, Indianapolis, Ind.; Chesman Nelson & Co., St. Louis, Mo.; Carothers, J. H., Martinez, Cal.
Douglas, B., Appleton, Wis.; Dulton, C. F., Cleveland, Ohio; Davis, Geo. S., (2) Detroit, Mich.; Dunwoody, J. A., Cripple Creek, Colo.
Eskridge, J. T., Denver, Colo.
Ferguson, M. B., Philadelphia, Pa.; Franklin, C. P., Philadelphia, Pa.; French, Pinckney, (2) St. Louis, Mo.
Gardner, R. W., New York, N. Y.; Gallaher, Thomas J., (2) Denver, Colo.
Harrington, J. F., Westgate, Iowa; Harrison, W. K., Chicago, Ill.; Hummel, A. L., (2) Philadelphia, Pa.
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